United States Listings

radio amateur callbook magazine



In this issue . . .

- 286,684 U.S. Licensed radio amateurs! 16,524 new licenses included, issued by FCC, since the Winter 1971-72 edition.
- 102,328 changes in listings!
- Slow Scan Television Directory – NEW!
- Zip Codes and License Class on all listings!
- Stop Press — late QTH's!
- Then & Now — Call letter changes!
- Silent Keys deleted from this issue!
- QSL Managers Around the World!
- Radio Amateur Prefixes of the world, with map!
- A.R.R.L. Countries List!
- Great Circle Bearings!
- International Postal Information!
- Standard Time Charts!
- Census of Amateur Radio Licenses of the World!
- Census of Amateur Radio Licenses of the U.S.!
- World Wide QSL Bureaus!
- Plus many other features!

The only publication listing licensed radio amateurs throughout the world, since 1920.

51st ANNIVERSARY EDITION FOR 1973

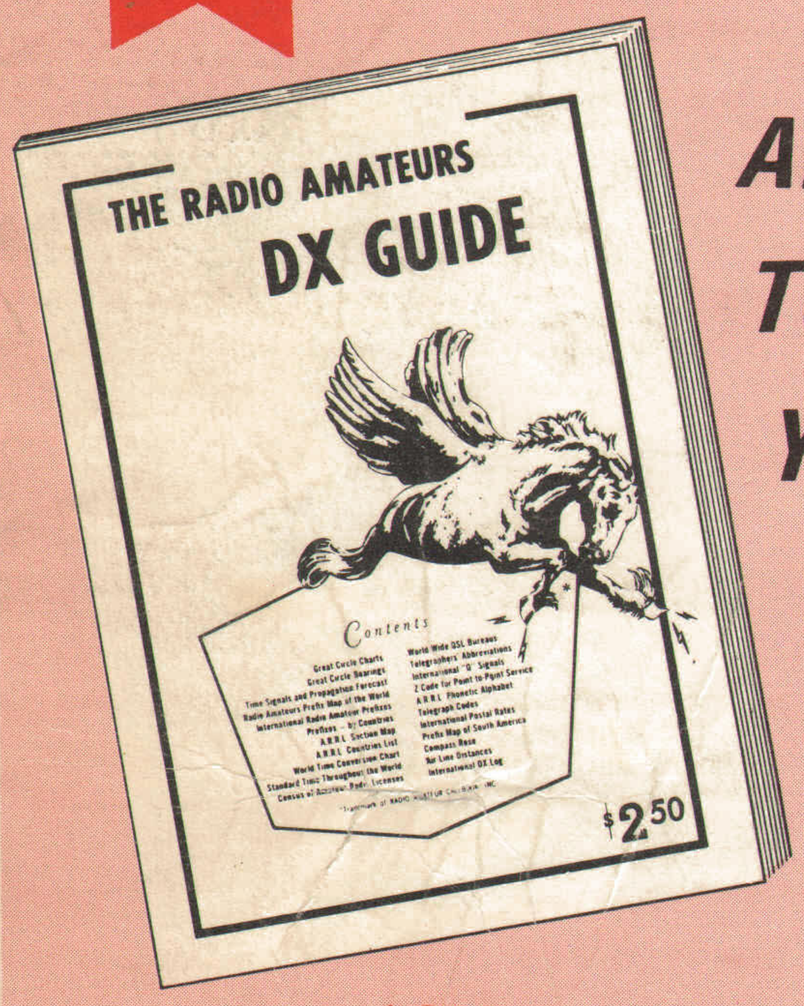
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WINTER 1972-73

WB2HZH

11th EDITION

RADIO AMATEURS DX GUIDE



ADD TO YOUR DXing Pleasure!

The DX Guide is a handy reference manual containing valuable information for every radio amateur — especially the DXers.

$2.50 plus 50¢ for mailing

64 pages, size 8¾"x12"

JUST LOOK AT THIS TABLE OF CONTENTS

INTERNATIONAL DX LOG — prefixes of all countries that qualify for DXCC. Ample space provided to make a permanent record of all DX stations worked, showing date, call letters, frequency and whether a QSL card has been sent or received. Can be used either for a DX contest or the annual ARRL field day.

WORLD MAP SHOWING RADIO AMATEUR PREFIXES — an outstanding map, 15" x 10".

GREAT CIRCLE MAPS — centered on New York City, San Francisco, Seattle, Wash., Washington, D.C. and the center of the United States.

PREFIX MAP OF SOUTH AMERICA — showing the number or letter designating all sections and countries.

GREAT CIRCLE BEARING TABLES — each printed on a separate page for easy removal of the one nearest your location. 326 bearings are shown to the nearest degree and the distance in statute miles on each table for Anchorage, Alaska; Atlanta, Georgia; Boston, Mass.; Buffalo, N.Y.; Chicago, Ill.; Columbus, Ohio; Dallas, Texas; Denver, Colo.; Detroit, Mich.; Honolulu, Hawaii; Houston, Texas; Jacksonville, Florida; Kansas City, Mo.; Knoxville, Tenn.; Los Angeles, Calif.; Louisville, Ky.; Miami, Fla.; Minneapolis, Minn.; New Orleans, La.; New York City, N.Y.; Norfolk, Va.; San Francisco, Calif.; Seattle, Wash.; Washington, D.C.; and the geographical center of the United States.

GREAT CIRCLE BEARINGS IN THE UNITED STATES — between 39 large cities in the U.S.A. — a valuable aid for VHF work as well as handling traffic through QRM.

GREAT CIRCLE BEARINGS TO WORLD WIDE METROLOPITAN AREAS — exact bearings to the nearest degree from 39 cities in the U.S.A. to 39 metropolitan areas throughout the world.

TIME CONVERSION TABLE — determine the time in any time zone in the world. Also know whether it is today or tomorrow at the place heard or worked.

TIME THROUGHOUT THE WORLD — time zones of most countries. Explains the International Time Zone System.

AIR LINE DISTANCES IN THE UNITED STATES — arranged in alphabetical order between 39 cities of the United States.

POSTAL INFORMATION — rates for QSL cards, first class and airmail letters to foreign countries. Also the number of international reply coupons for the proper postage for a return airmail letter is shown for most countries.

ARRL COUNTRIES LIST — official list of ARRL DX contest and DXCC. Courtesy ARRL.

COMPASS ROSE—for that rotary beam indicator, graduated for 360 degrees. With white background and no print on the reverse side of the sheet.

PLUS THESE INTERESTING FEATURES — INTERNATIONAL "Q" SIGNALS; WORLD WIDE QSL BUREAUS; "Z" CODE FOR POINT-TO-POINT SERVICE; ARRL PHONETIC ALPHABET; TELEGRAPHERS ABBREVIATIONS; DX OPERATING CODE; TELEGRAPH CODES.

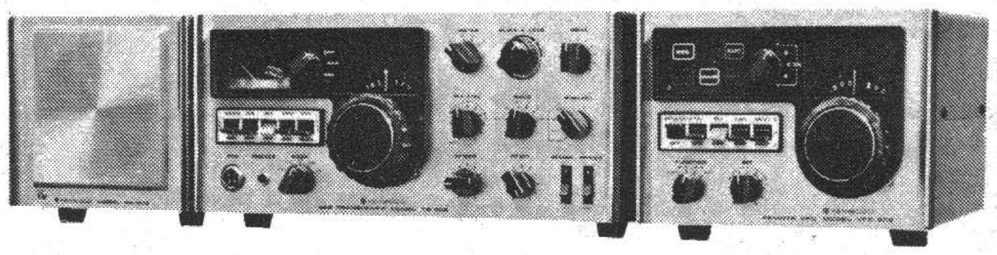
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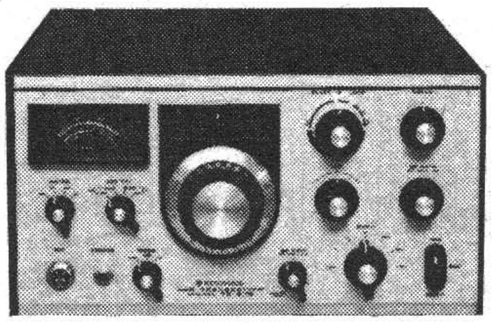
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KENWOOD'S TS-511S

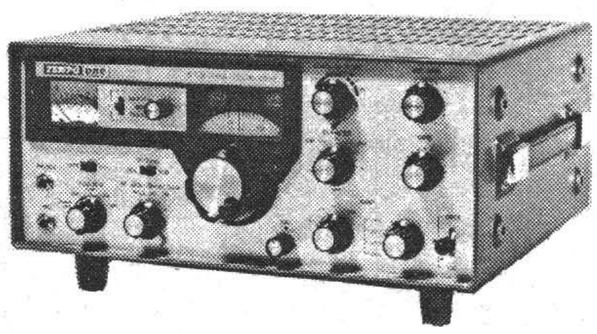
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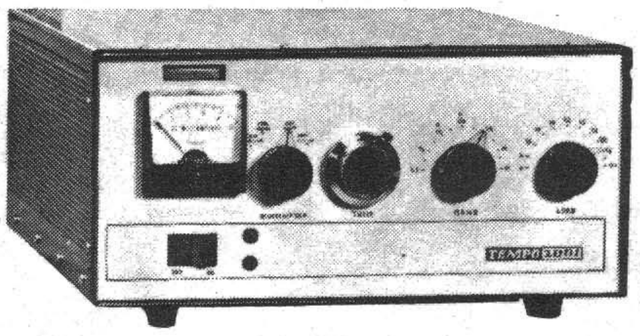
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Never before has there been an amateur receiver and transmitter like the Kenwood R-599 solid state receiver and T-599 hybrid transmitter. Please write for complete specifications ... you'll be impressed. **The R-599 $349.00 The T-599 $395.00**



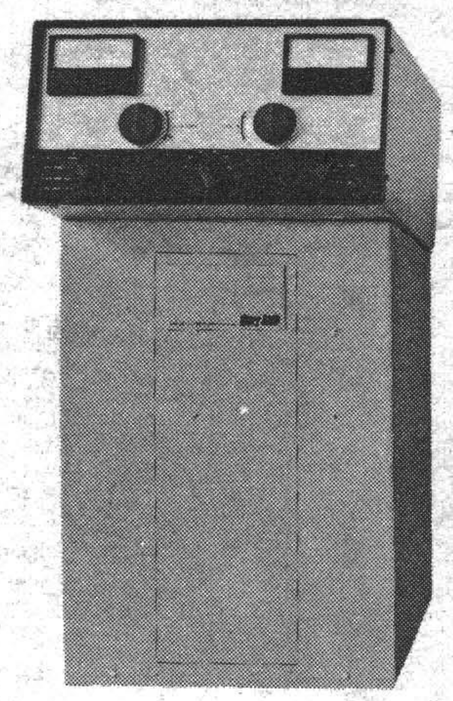
The TEMPO 'ONE'

The Tempo 'ONE' SSB transceiver represents the culminating achievement of many years of experience in the amateur radio field. Modern design, superb performance, sturdy construction, outstanding reliability ... at a surprisingly low price makes the Tempo 'ONE' the best buy in transceivers today. $319.00



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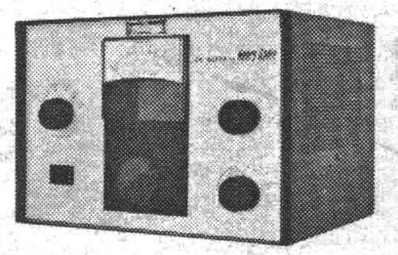
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The 2K-4

LINEAR AMPLIFIER

The 2K-4 linear amplifier offers engineering, construction and features second to none, and at a price that makes it the best amplifier value ever offered to the amateur. Constructed with a ruggedness guaranteed to provide a long life of reliable service, its heavy duty components allow it to loaf along even at full legal power. If you want to put that strong clear signal on the air that you've probably heard from other 2K users, now is the time. Move up to the 2K-4. Floor console or desk model ... $795.00



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LINEAR AMPLIFIER

There has never been an amateur linear amplifier like the new 2K-ULTRA. Small and lightweight, yet rugged and reliable ... all that the name implies. The ULTRA loafs along at full legal power without even the sound of a blower. Its anode heat is silently and efficiently conducted to a heat sink through the use of a pair of Elmac 8873 tubes. In fact, all of its components are the very best obtainable. The price ... $845.00

Also a complete line of high power linear amplifiers for commercial and military use and industrial power generators for plasma generation. Please call or write.

TEMPO ... the worlds most complete line of advanced VHF FM equipment



TEMPO/CL220 VHF transceiver. Commercial performance at amateur prices. 220-225 MHz, 12-channel capability, 10 watts or 3 watts out. $329.00

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radio amateur **callbook** magazine

known the world over as the "CALLBOOK"

RADIO AMATEURS OF THE U.S.A.

VOLUME 50
NUMBER 4

ALL K AND W CALLS

WINTER 1972-73

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Includes the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

SECOND CALL AREA---- 42
Includes the States of New Jersey and New York.

THIRD CALL AREA----114
Includes the States of Delaware, Maryland, Pennsylvania, and the District of Columbia.

FOURTH CALL AREA----164
Includes the States of Alabama, Florida, Georgia, Kentucky, North and South Carolina, Tennessee and Virginia.

FIFTH CALL AREA----256
Includes the States of Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.

SIXTH CALL AREA----314
Includes the State of California.

SEVENTH CALL AREA----394
Includes the States of Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming.

EIGHTH CALL AREA----437
Includes the States of Michigan, Ohio and West Virginia.

NINTH CALL AREA----502
Includes the States of Illinois, Indiana and Wisconsin.

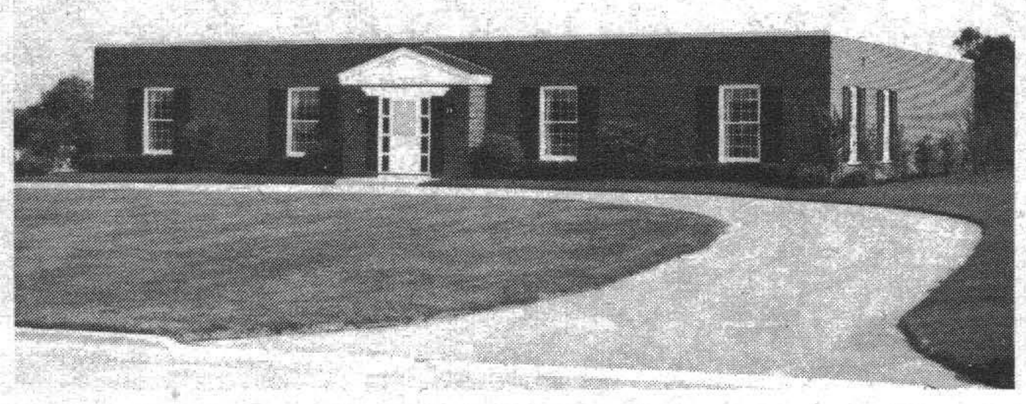
TENTH CALL AREA----563
Includes the States of Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota.

OTHER CALLS INCLUDING HAWAII AND ALASKA----620

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Address:_____

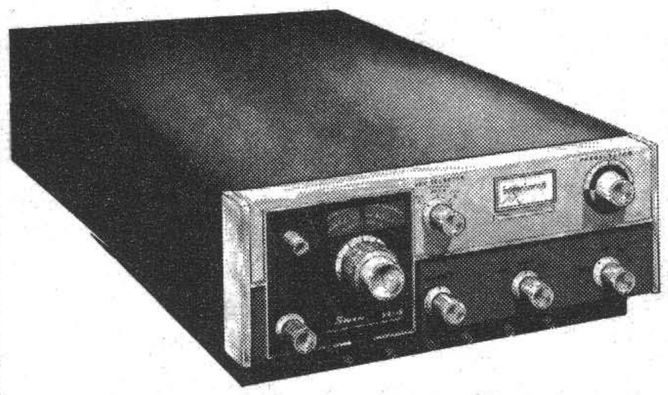
City:_____

State:_____ Zip Code:_____

Call:_____



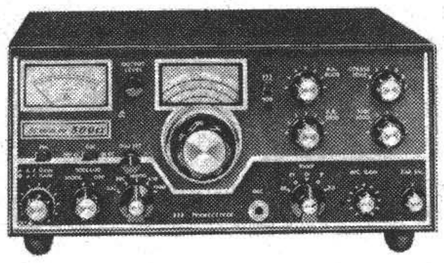
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SWAN SS-15—15 Watt P.E.P. Solid-State Transceiver. Covers all amateur bands 80 thru 10 Meters **$579.00**

SWAN SS-100—100 Watt P.E.P. Solid-State Transceiver. Covers all amateur bands 80 thru 10 Meters **$699.00**

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SWAN 500CX—550 Watts P.E.P. SSB CW/AM Transceiver. Covers all amateur bands 80 thru 10 Meters. **$529.95**
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SWAN 117-XC—Power supply. 117V AC. **$109.95**

SWAN 230-XC—Power supply. 117 to 230V AC. **$115.95**

SWAN FM-1210A—10 Watts P.E.P. SSB Transceiver. 144 channel combinations on 2 Meter FM. Includes AC power supply & Microphone **$359.95**



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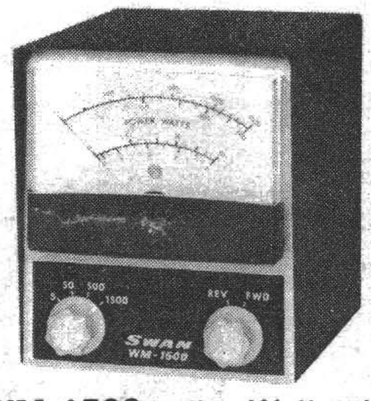
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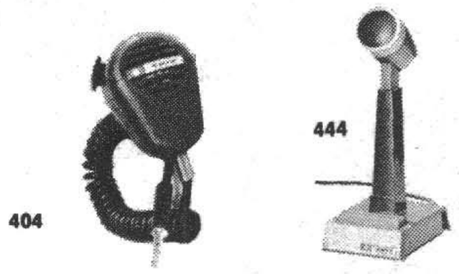
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SWAN 160—VFO **$119.00**

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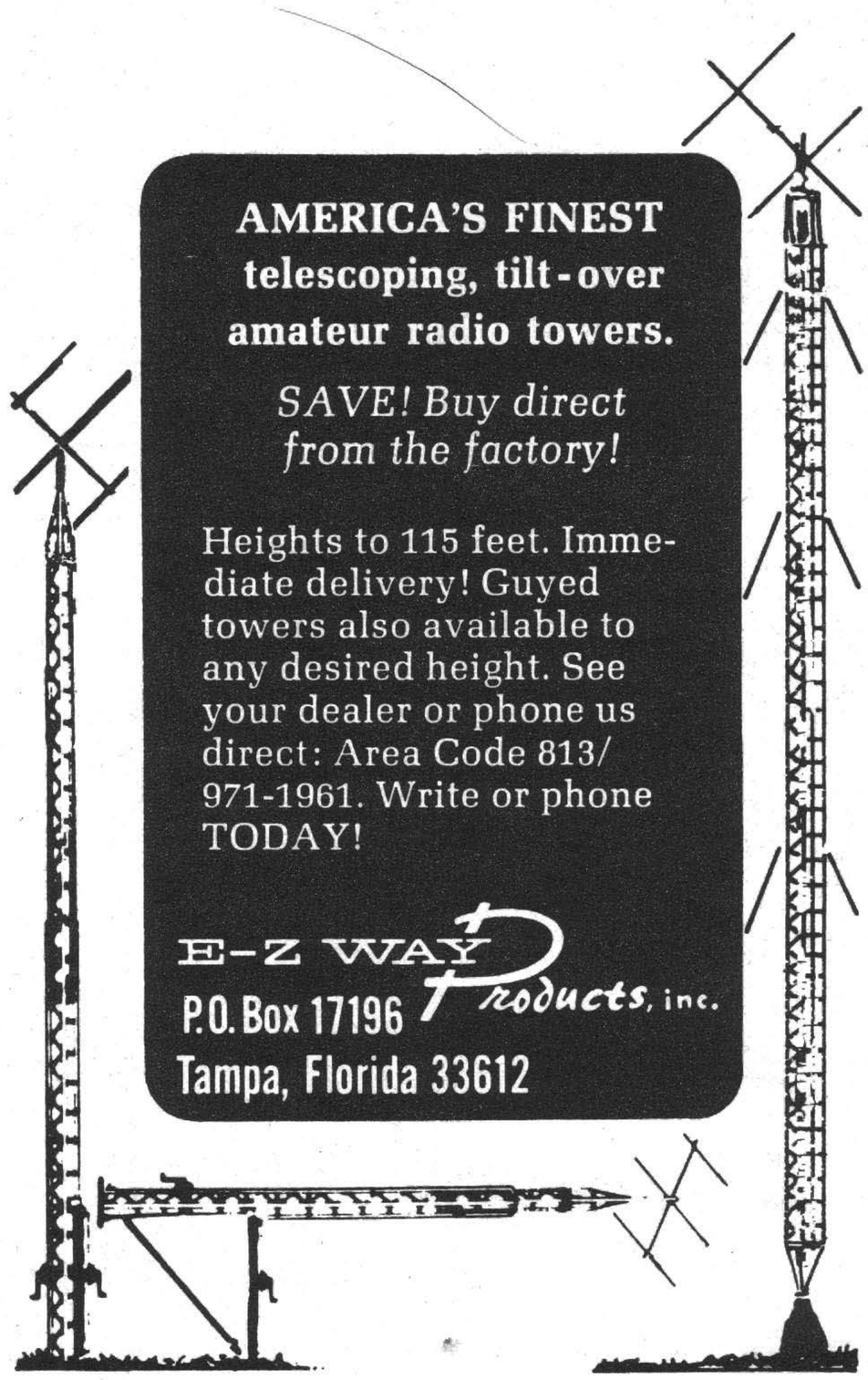
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PREFIXES—BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes. Characters in ( ) designate the continent and zone in which the country is located. Abbreviations are as follows: A—Asia, AF—Africa, E—Europe, NA—North America, O—Oceania, SA—South America.

Afghanistan	(A-21)	YA
Agalega Is.	(AF-39)	3B6
Aland Is.	(E-15)	OHØ
Alaska	(NA-1)	KL7
Albania	(E-15)	ZA
Algeria	(AF-33)	7X
Amsterdam & St. Paul Is.	(AF-39)	FB8Z
Andaman & Nicobar Is.	(A-26)	VU2
Andorra	(E-14)	C31
Angola	(AF-36)	CR6
Antarctica		CE9AA-AM, FB8Y, KC4, LA, LU-Z, UA1, VKØ, VP8, ZL5, 3Y, 8J
Argentina	(SA-13)	LU
Ascension Is.	(AF-36)	ZD8
Auckland & Campbell Is.	(O-32)	ZL
Australia	(O-29 & 30)	VK
Austria	(E-15)	OE
Aves Is.	(SA-8)	YVØ
Azores Is.	(E-14)	CT2
Bahama Is.	(NA-8)	VP7
Bahrain Is.	(A-21)	MP4B
Bajo Nuevo Is.	(NA-7)	HKØ
Baker Is.	(O-31)	KB6
Balearic Is.	(E-14)	EA6
Bangladesh	(A-22)	S2, S3
Barbados Is.	(NA-8)	8P6
Belgium	(E-14)	ON
Belize (British Honduras)	(NA-7)	VP1
Bengladesh	(A-22)	AP
Bermuda Is.	(NA-5)	VP9
Bhutan	(A-22)	A51
Bolivia	(SA-10)	CP
Botswana	(AF-38)	A2C
Bouvet Is.	(AF-38)	3Y
Brazil	(SA-11)	PY
British Phoenix Is.	(O-31)	VR1
Brunei	(O-28)	VS5
Bulgaria	(E-20)	LZ
Burma	(A-26)	XZ2
Burundi	(AF-36)	9U5
Cambodia/Khmer Rep.	(A-26)	XU
Cameroon	(AF-36)	TJ
Canada	(NA-1 to 5)	VE
Canal Zone	(NA-7)	KZ5
Canary Is.	(AF-33)	EA8
Canton Is.	(O-31)	KB6
Cape Verde Is.	(AF-35)	CR4
Capri Is.	(E-15)	IC
Caroline Is.	(O-27)	KC6
Cayman Is.	(NA-8)	ZF1
Central African Republic	(AF-36)	TL8
Ceuta y Melilla, Spanish	(A-33)	EA9
Ceylon (Rep. of Sri Lanka)	(A-22)	4S7
Chad Republic	(AF-36)	TT8
Chagos Is.	(AF-39)	VQ9
Channel Is.	(E-14)	GC
Chatham Is.	(O-32)	ZL
Chile	(SA-12)	CE
China	(A-23 & 24)	BY
Christmas Is.	(O-29)	VK9X
Clipperton Is.	(NA-7)	FO8
Cocos Is.	(NA-7)	TI9
Cocos (Keeling) Is.	(O-29)	VK9Y
Colombia	(SA-9)	HK
Comoro Is.	(AF-39)	FH8, FB8
Congo, Republic of	(AF-36)	TN8
Cook Is.	(O-32)	ZK1
Corsica	(E-15)	FC
Costa Rica	(NA-7)	TI
Crete, Greece	(E-20)	SV, SZØ
Crozet Is.	(AF-39)	FB8W
Cuba	(NA-8)	CM, CO
Cyprus	(A-20)	ZC4, 5B4
Czechoslovakia	(E-15)	OK, OL
Dahomey	(AF-35)	TY
Das Is.	(A-21)	MP4D
Denmark	(E-14)	OZ
Dodecanese Is.	(E-20)	SV5
Dominican Republic	(NA-8)	HI
Easter Is.	(SA-12)	CEØA
Ecuador	(SA-10)	HC
Egypt (United Arab Rep.)	(AF-34)	SU
El Salvador	(NA-7)	YS
Enderbury Is.	(O-31)	KB6
England	(E-14)	G
Ethiopia	(AF-37)	ET3
Faeroes Is.	(E-14)	OY
Falkland Is.	(SA-13)	VP8
Fernando de Noronha	(SA-11)	PYØ
Fiji	(O-32)	VR2
Finland	(E-15)	OH
France	(E-14)	F
French Polynesia	(O-32)	FO8
Gabon Republic	(AF-36)	TR8
Galapagos Is.	(SA-10)	HC8
Gambia	(AF-35)	ZD3
German Federal Rep, West	(E-14)	DA, B, C, F, J, K, L
German Dem. Rep, East	(E-14)	DM
Ghana	(AF-35)	9G1
Gibraltar	(E-14)	ZB2
Gilbert, Ellice & Ocean Is.	(O-31)	VR1
Glorioso Is.	(AF-39)	FR7
Gozo	(E-15)	9H4
Graham Land	(SA-13)	VP8, LU-Z
Greece	(E-20)	SV, SZØ
Greenland	(NA-40)	OX
Guadeloupe	(NA-8)	FG7
Guam Is.	(O-27)	KG6
Guantanamo Bay	(NA-8)	KG4
Guatemala	(NA-7)	TG
Guiana, French	(SA-9)	FY7
Guinea, Equatorial	(AF-36)	3C
Guinea, Portuguese	(AF-35)	CR3
Guinea, Republic of	(AF-35)	3X, 7G1
Guyana	(SA-9)	8R
Haiti	(NA-8)	HH
Hawaii	(O-31)	KH6
Heard Is.	(O-39)	VKØ
Honduras	(NA-7)	HR
Hong Kong	(A-24)	VS6
Howland Is.	(O-31)	KB6
Hungary	(E-15)	HA, HG
Iceland	(E-40)	TF
India	(A-22)	VU2
Indonesia	(O-28)	YB, YC, YD
Iran	(A-21)	EP
Iraq	(A-21)	YI
Ireland	(E-14)	EI
Isle of Man	(E-14)	GD
Israel	(A-20)	4X4, 4Z4
Italy	(E-15)	I
Ivory Coast	(AF-35)	TU2
Jamaica	(NA-8)	6Y5
Jan Mayen Is.	(E-40)	JX
Japan	(A-25)	JA, JE, JH, JR
Jarvis Is.	(O-31)	KP6
Johnston Is.	(O-31)	KJ6
Jordan	(A-20)	JY
Juan de Nova Is.	(AF-39)	FR7
Juan Fernandez Is.	(SA-12)	CEØZ
Kamaran Is.	(A-21)	VS9K
Kenya	(AF-37)	5Z4
Kerguelen Is.	(AF-39)	FB8X
Kermadec Is.	(O-32)	ZL
Korea	(A-25)	HM, HL9
Kure Is.	(O-31)	KH6
Kuwait	(A-21)	9K2
Labrador	(NA-2)	VO2
Laccadive Is.	(A-22)	VU2
Lampedusa Is.	(E-15)	IG9
Laos	(A-26)	XW8
Lebanon	(A-20)	OD5
Leeward Is.		
Anguilla	(NA-8)	VP2E
Antigua, Barbuda	(NA-8)	VP2A
British Virgin Is.	(NA-8)	VP2V
Montserrat	(NA-8)	VP2M
St. Kitts, Nevis	(NA-8)	VP2K
Lesotho	(AF-38)	7P8
Liberia	(AF-35)	EL, 5L
Libya	(AF-34)	5A
Liechtenstein	(E-14)	HBØ, HE
Line Is.	(O-31)	VR3
Lord Howe Is.	(O-30)	VK2
Luxembourg	(E-14)	LX
Macao	(A-24)	CR9
Macquarie Is.	(O-30)	VKØ
Madeira Is.	(AF-33)	CT3
Malagasy Republic	(AF-39)	5R8
Malawi	(AF-37)	7Q7
Malaysia, East	(A-28)	9M6, 8
Malaysia, West	(A-28)	9M2, 4
Maldive Is.	(A-22)	8Q6, VS9M
Mali Republic	(AF-35)	TZ
Malpelo Is.	(SA-9)	HKØ
Malta	(E-15)	9H1
Manihiki Is.	(O-31)	ZK1
Mariana Is. (Saipan)	(O-27)	KG6R, S, T
Market Reef	(E-15)	OJØ, OHØM
Marshall Is.	(O-31)	KX6
Martinique	(NA-8)	FM7
Mauritania	(AF-35)	5T5
Mauritius Is.	(AF-39)	3B8
Mexico	(NA-6)	XE, XF
Midway Is.	(O-31)	KM6
Minami-Tori-Shima Is.	(A-25 & O-27)	JD1
Monaco	(E-14)	3A
Mongolia	(A-23)	JT1
Morocco	(AF-33)	CN2, 8, 9
Mozambique	(AF-37)	CR7
Nauru, Republic of	(O-31)	C21
Navassa Is.	(NA-8)	KC4
Nepal	(A-22)	9N1
Netherlands	(E-14)	PA, PE, PI
Netherlands Antilles	(NA-8 & SA-9)	PJ
New Caledonia	(O-32)	FK8
Newfoundland	(NA-5)	VO1
New Guinea Territory	(O-28)	VK9AA-MZ
New Hebrides	(O-32)	FU8, YJ
New Zealand	(O-32)	ZL
Nicaragua	(NA-7)	YN, HT
Niger	(AF-35)	5U7
Nigeria	(AF-35)	5N2
Niue Is.	(O-32)	ZK2
Norfolk Is.	(O-32)	VK9N
Northern Ireland	(E-14)	GI
Norway	(E-14)	LA, LF, LG, LJ
Ogasawara Is. (Bonin Is.)	(A-27)	JD
Okinawa (Ryukyu Is.)	(A-25)	JR6
Oman	(A-21)	MP4M
Pakistan	(A-21)	AP
Palmyra Is.	(O-31)	KP6
Panama	(NA-7)	HP
Pantelleria Is.	(AF-33)	IH
Papua Territory	(O-28)	VK9AA-MZ
Paraguay	(SA-11)	ZP
Peru	(SA-10)	OA
Philippines	(O-27)	DU
Phoenix Is.	(O-31)	KB6
Pianosa Is.	(E-14)	IA
Pitcairn Is.	(O-32)	VR6
Poland	(E-15)	SP
Portugal	(E-14)	CT1
Prince Edward & Marion Is.	(AF-38)	ZS2
Principe & Sao Tome Is.	(A-36)	CR5
Puerto Rico	(NA-8)	KP4
Qatar	(A-21)	MP4Q
Reunion Is.	(AF-39)	FR7
Revilla Gigedo Is.	(NA-6)	XE4
Rhodesia	(AF-38)	ZE
Rodriguez Is.	(AF-39)	3B9
Romania	(E-20)	YO
Rwanda	(AF-36)	9X5
Ryukyu Is. (Okinawa)	(A-25)	JR6
Sabah	(O-28)	9M6
St. Brandon Is.	(AF-39)	3B7
Saint Helena Is.	(AF-36)	ZD7
Saint Martin Is.	(NA-8)	FS7
St. Peter & St. Paul's Rocks	(SA-11)	PYØ
Saint Pierre & Miquelon Is.	(NA-5)	FP8
Samoa, American	(O-32)	KS6
Samoa, Western	(O-32)	5W1
San Andres & Providencia	(NA-7)	HKØ
San Felix Is.	(SA-12)	CEØX
San Marino	(E-15)	M1
Sao Tome & Principe Is.	(A-36)	CR5
Sarawak	(O-28)	9M8
Sardinia	(E-15)	IS
Saudi Arabia	(A-21)	HZ, 7Z
Saudi Arabia/Iraq Neutral Zone	(A-21)	8Z4
Scotland	(E-14)	GM
Senegal Republic	(AF-35)	6W8
Serrana Bk & Roncador Cay	(NA-7)	KS4B, HKØ
Seychelles Is.	(AF-39)	VQ9
Sicily	(E-15)	IT
Sierra Leone	(AF-35)	9L1
Sikkim	(A-22)	AC3
Singapore, Rep. of	(A-28)	9V1
Solomon Is.	(O-28)	VR4
Somali Republic	(AF-37)	601, 2, 6
Somaliland, French	(AF-37)	FL8
South Africa	(AF-38)	ZS1, 2, 4-6
South Georgia Is.	(SA-13)	VP8
South Orkney Is.	(SA-13)	VP8
South Sandwich Is.	(SA-13)	VP8
S. Shetland Is.	(SA-13)	CE9AN-AZ, VP8
Southwest Africa	(AF-38)	ZS3
South Yemen	(A-21)	VS9A, P, S, 70
Soviet Union:		
European Russian Soviet Federated Socialist Republic	(E-16)	UA1, 2, 3, 4, 6
Asiatic Russian S.F.S.R.	(A-18, 19)	UA9, Ø
Armenian S.S.R.	(A-21)	UG6
Azerbaidzhan S.S.R.	(A-21)	UD6
Estonian S.S.R.	(E-15)	UR2
Franz Josef Land	(NA-40)	UA1
Georgian S.S.R.	(A-21)	UF6
Kaliningradsk	(E-15)	UA2
Kazakh S.S.R.	(A-17)	UL7
Kirghiz S.S.R.	(A-17)	UM8
Latvian S.S.R.	(E-15)	UQ2
Lithuanian S.S.R.	(E-15)	UP2
Moldavian S.S.R.	(E-16)	UO5
Tadzhik S.S.R.	(A-17)	UJ8
Turkmen S.S.R.	(A-17)	UH8
Ukrainian S.S.R.	(E-16)	UB5
Uzbek S.S.R.	(A-17)	UI8
White Russian S.S.R.	(E-16)	UC2
Spain	(E-14)	EA
Spanish Sahara (Rio de Oro)	(A-33)	EA9
Sri Lanka (Ceylon)	(A-22)	4S7
Sudan	(AF-34)	ST
Surinam	(SA-9)	PZ
Svalbard Is.	(E-40)	JW
Swan Is.	(NA-7)	KS4, HRØ
Swaziland	(AF-38)	3D6
Sweden	(E-14)	SK, SL, SM
Switzerland	(E-14)	HB
Syria	(A-20)	YK
Taiwan (Formosa)	(A-24)	BV
Tanganyika (Tanzania)	(AF-37)	5H3
Tasmania	(O-30)	VK7
Thailand	(A-26)	HS
Tibet	(A-23)	AC4
Timor Is. (Portuguese)	(O-28)	CR8
Togo	(AF-35)	5V
Tokelau Is.	(O-31)	ZM7
Tonga	(O-32)	A35
Trindade & Martim Vaz Is.	(SA-11)	PYØ
Trinidad & Tobago Is.	(SA-9)	9Y4
Tristan de Cunha & Gough	(AF-38)	ZD9
Tromelin Is.	(AF-39)	FR7
Trucial States	(A-21)	MP4T
Tunisia	(AF-33)	3V8
Turkey	(A-20)	TA, TC
Turks & Caicos Is.	(NA-8)	VP5
Uganda	(AF-37)	5X5
United Nations, Geneva	(E-14)	4U
United States of America	(NA-3, 4, 5)	W, K
Upper Volta	(AF-35)	XT2
Uruguay	(SA-13)	CX
Vatican City	(E-15)	HV
Venezuela	(SA-9)	YV
Vietnam	(A-26)	3W8
Virgin Is.	(NA-8)	KV4
Wake Is.	(O-31)	KW6
Wales	(E-14)	GW
Wallis & Futuna Is.	(O-32)	FW8
Willis Is.	(O-30)	VK4
Windward Is.		
Dominica	(NA-8)	VP2D
Grenada & Dependencies	(NA-8)	VP2G
St. Lucia	(NA-8)	VP2L
St. Vincent & Dependencies	(NA-8)	VP2S
Yemen	(A-21)	4W1, 3
Yugoslavia	(E-15)	YU, YT
Zaire, Republic of	(AF-36)	9Q5
Zambia	(AF-36)	9I, 9J
Zanzibar (Tanzania)	(AF-37)	5H1, VQ1



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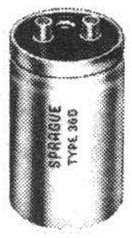
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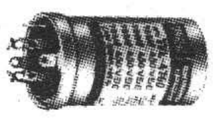
'LYTIC CAPACITORS

Powerlytics®

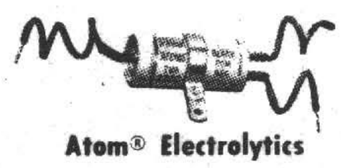


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Hermetically sealed in aluminum cases. Withstand high temperatures (85° C), high surge voltages, high ripple currents.



Atom® Electrolytics

Tiny, dependable single or multiple section units. Low leakage, long shelf life. Metal cases.



Litti-Lytic® Electrolytics

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Exclusive 3-terminal feed-thru units which effectively by-pass vhf currents. Suppress TVI from transmitters, diathermy, line-conducted radiation, etc.

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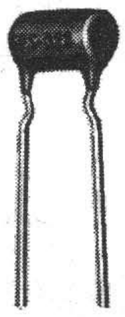
Light Emitting Diodes*



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* Another exciting product from Monsanto

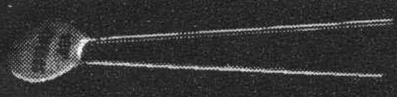
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Flat disc capacitor element sealed in top of hex head. Screw stud for easy mounting. Low self-inductance, high self-resonant frequency. Ideal for by-pass or feed-thru applications.

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Insulated shell power resistors wound with ceramic-insulated wire. Completely moisture-proof. Ratings to 120 watts in inductive and non-inductive types.



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INTERNATIONAL RADIO AMATEUR PREFIXES

The following prefixes are listed in alphabetical order for convenience in locating the country when DX calls are heard.

A2C..... Botswana
A35..... Tonga
A51..... Bhutan
AC3..... Sikkim
AC4..... Tibet
AP..... Bengladesh
AP..... Pakistan

BV..... Taiwan
BY..... China

CE..... Chile
CE9AA-AM..... Chilean Antarctica, Tierra de O'Higgins, Palmer Peninsula, Graham Land
CE9AN-AZ..... South Shetland Is.
CEØA..... Easter Is.
CEØX..... San Felix Is.
CEØZ..... Juan Fernandez Is.
CM,CO..... Cuba
CN..... Morocco
CP..... Bolivia
CR3..... Portuguese Guinea
CR4..... Cape Verde Is.
CR5..... Sao Tome & Principe Is.
CR6..... Angola
CR7..... Mozambique
CR8..... Timor Is.(Portuguese)
CR9..... Macao
CT1..... Portugal
CT2..... Azores Is.
CT3..... Madeira Is.
CX..... Uruguay
C21..... Republic of Nauru
C31..... Andorra

DA,B,C,F,J,K,L.. West German Federal Rep.
DM..... East German Democratic Rep.
DU..... Philippines

EA..... Spain
EA6..... Balearic Is.
EA8..... Canary Is.
EA9..... Spanish Sahara, Ceuta y Melilla
EI..... Ireland
EL,5L..... Liberia
EP..... Iran
ET3..... Ethiopia

F..... France
FB8W..... Crozet Is.
FB8X..... Kerguelen Is.
FB8Y..... Antarctica
FB8Z..... Amsterdam & St.Paul Is.
FC..... Corsica
FG7..... Guadeloupe
FH8..... Comoro Is.
FK8..... New Caledonia
FL8... French Somaliland (Afars and Issas)
FM7..... Martinique
FO8..... French Polynesia, Clipperton Is.
FP8..... St.Pierre & Miquelon Is.
FR7..... Glorioso, Juan de Nova, Reunion, Tromelin Is.
FS7..... Saint Martin
FU8..... New Hebrides
FW8..... Wallis & Futuna Is.
FY7..... French Guiana

G..... England
GC..... Channel Is.
GD..... Isle of Man
GI..... Northern Ireland
GM..... Scotland
GW..... Wales

HA,HG..... Hungary
HB..... Switzerland
HBØ..... Liechtenstein
HC..... Ecuador
HC8..... Galapagos Is.
HH..... Haiti
HI..... Dominican Republic
HK..... Colombia
HKØ.... Bajo Nuevo, Malpelo, San Andres & Providencia Is.
HM,HL9..... Korea
HP..... Panama
HR..... Honduras
HRØ..... Swan Is.
HS..... Thailand
HT..... Nicaragua
HV..... Vatican City
HZ,7Z..... Saudi Arabia

I,IRØ..... Italy
IA..... Pianosa Is.
IC..... Capri & Ischia Is.
IG9..... Lampedusa Is.
IH..... Pantelleria Is.
IS..... Sardinia
IT..... Sicily

JA,JH,JR..... Japan
JD1..... Ogasawara, Minami-Tori-Shima Is.
JR6..... Okinawa (Ryukyu Is.)
JT1..... Mongolia
JW..... Svalbard Is.
JX..... Jan Mayen Is.
JY..... Jordan

K..... United States of America
KA..... U.S.Personnel in Japan
KB6..... Baker, Canton, Enderbury, Howland & Phoenix Is.
KC4..... Navassa Is.
KC4AA,KC4US..... Antarctica
KC6..... Caroline Is.
KG4..... Guantanamo Bay, Cuba
KG6..... Guam
KG6R,S,T..... Mariana Is.
KH6..... Hawaii & Kure Is.
KJ6..... Johnston Is.
KL7..... Alaska
KM6..... Midway Is.
KP4..... Puerto Rico
KP6..... Jarvis & Palmyra Is.
KS4..... Swan Is.
KS4B..... Serrana Bank & Roncador Cay
KS6..... American Samoa
KV4..... Virgin Is.
KW6..... Wake Is.
KX6..... Marshall Is.
KZ5..... Canal Zone

LA,LF,LG,LJ..... Norway
LU..... Argentina
LX..... Luxembourg
LZ..... Bulgaria

M1..... San Marino
MP4B..... Bahrain Is.
MP4D..... Das Is.
MP4M..... Oman
MP4Q..... Qatar
MP4T..... Trucial States

OA..... Peru
OD5..... Lebanon
OE..... Austria
OH..... Finland
OHØ..... Aland Is.
OJØ, OHØM..... Market Reef
OK,OL..... Czechoslovakia
ON..... Belgium
OX..... Greenland
OY..... Faeroes Is.
OZ..... Denmark

PA,PE,PI..... Netherlands
PJ..... Netherlands Antilles
PJ2,9..... Curacao
PJ3,9..... Aruba
PJ4,9..... Bonaire
PJ5,8..... St. Eustatius
PJ6,8..... Saba Is.
PJ7,8..... Sint Maarten
PY..... Brazil
PYØ..... Fernando de Noronha Is.
PYØ..... St.Peter & St.Paul's Rocks
PYØ..... Trindade & Martim Vaz Is.
PZ..... Surinam

SK,SL,SM..... Sweden
SP..... Poland
ST..... Sudan
SU..... Egypt (United Arab Republic)
SV,SZØ..... Crete, Greece
SV5..... Dodecanese Is.
S2,S3..... Bangladesh

TA,TC..... Turkey
TF..... Iceland
TG..... Guatemala
TI..... Costa Rica
TI9..... Cocos Is.
TJ..... Cameroon
TL8..... Central African Republic
TN8..... Republic of Congo (Brazzaville)
TR8..... Gabon
TT8..... Chad
TU2..... Ivory Coast
TY..... Dahomey
TZ..... Mali Republic

UA1,2,3,4,6..... European Russian Soviet Federated Socialist Republic
UA9,Ø..... Asiatic Russian S.F.S.R.
UB5..... Ukrainian S.S.R.
UC2..... White Russian S.S.R.
UD6..... Azerbaidzhan S.S.R.
UF6..... Georgian S.S.R.
UG6..... Armenian S.S.R.
UH8..... Turkmen S.S.R.
UI8..... Uzbek S.S.R.
UJ8..... Tadzhik S.S.R.
UL7..... Kazakh S.S.R.
UM8..... Kirghiz S.S.R.
UO5..... Moldavian S.S.R.
UP2..... Lithuanian S.S.R.
UQ2..... Latvian S.S.R.
UR2..... Estonian S.S.R.

VE..... Canada
VK..... Australia
VO1..... Newfoundland
VO2..... Labrador
VP1..... Belize (British Honduras)
VP2..... Leeward & Windward Is.
VP5..... Turks & Caicos Is.
VP7..... Bahama Is.
VP8..... Falkland, S.Georgia, S.Orkney, S.Sandwich, S.Shetland Is., Graham Land
VP9..... Bermuda Is.
VQ1..... Zanzibar (Tanzania)
VQ9..... Chagos & Seychelles Is.
VR1.... Br.Phoenix, Ellice, Gilbert & Ocean Is.
VR2..... Fiji
VR3..... Line Is.
VR4..... Solomon Is.
VR6..... Pitcairn Is.
VS5..... Brunei
VS6..... Hong Kong
VS9A,P,S..... South Yemen
VS9K..... Kamaran Is.
VS9M..... Maldive Is.
VU2..... India
VU2..... Laccadive Is.
VU2..... Andaman & Nicobar Is.

W..... United States of America

XE,XF..... Mexico
XE4..... Revilla Gigedo Is.
XT2..... Upper Volta
XU..... Cambodia/Khmer Republic
XW8..... Laos
XZ2..... Burma

YA..... Afghanistan
YB,YC,YD..... Indonesia
YI..... Iraq
YJ..... New Hebrides
YK..... Syria
YN..... Nicaragua
YO..... Romania
YS..... El Salvador
YU,YT..... Yugoslavia
YV..... Venezuela
YVØ..... Aves Is.

ZA..... Albania
ZB2..... Gibraltar
ZC4..... Cyprus
ZD3..... Gambia
ZD7..... Saint Helena
ZD8..... Ascension Is.
ZD9..... Tristan da Cunha & Gough Is.
ZE..... Rhodesia
ZF1,VP5..... Cayman Is.
ZK1..... Cook & Maniniki Is.
ZK2..... Niue Is.
ZL,ZM..... New Zealand & Auckland, Campbell, Chatham, Kermadec Is.
ZM7..... Tokelau Is.
ZP..... Paraguay
ZS1,2,4,5,6..... South Africa
ZS2..... Prince Edward & Marion Is.
ZS3..... Southwest Africa (Namibia)

3A..... Monaco
3B6..... Agalega Is.
3B7..... St. Brandon Is.
3B8..... Mauritius Is.
3B9..... Rodriguez Is.
3C..... Equatorial Guinea
3D6..... Swaziland
3V8..... Tunisia
3W8..... Vietnam
3Y..... Bouvet Is.

4S7..... Sri Lanka (Ceylon)
4U..... United Nations, Geneva, Turin
4W1..... Yemen
4X4,4Z4..... Israel

5A..... Libya
5B4..... Cyprus
5H1..... Zanzibar, Tanzania
5H3..... Tanganyika, Tanzania
5N2..... Nigeria
5R8..... Madagascar (Malagasy Republic)
5T5..... Mauritania
5U7..... Niger
5V..... Togo
5W1..... Western Samoa
5X5..... Uganda
5Z4..... Kenya

6O1,2,6..... Somali Republic
6W8..... Senegal
6Y5..... Jamaica

7G1..... Republic of Guinea
7O..... South Yemen
7P8..... Lesotho
7Q7..... Malawi
7X..... Algeria
7Z..... Saudi Arabia

8P6..... Barbados Is.
8Q6..... Maldive Is.
8R..... Guyana
8Z4..... Saudi Arabia/Iraq Neutral Zone

9G1..... Ghana
9H1..... Malta
9H4..... Gozo
9I,9J..... Zambia
9K2..... Kuwait
9L1..... Sierra Leone
9M2..... West Malaysia
9M6,8..... East Malaysia
9N1..... Nepal
9Q5..... Republic of Zaire
9U5..... Burundi
9V1..... Republic of Singapore
9X5..... Rwanda
9Y4..... Trinidad & Tobago Is.

TELEGRAPH CODES

CONTINENTAL CODE	MORSE CODE
Used in ham radio	Used on land lines in United States and Canada

	Continental	Morse
A	• —	• —
B	— • • •	— • • •
C	— • — •	— • — •
D	— • •	— • •
E	•	•
F	• • — •	• • — •
G	— — •	— — •
H	• • • •	• • • •
I	• •	• •
J	• — — —	• — — —
K	— • —	— • —
L	• — • •	• — • •
M	— —	— —
N	— •	— •
O	— — —	— — —
P	• — — •	• — — •
Q	— — • —	— — • —
R	• — •	• — •
S	• • •	• • •
T	—	—
U	• • —	• • —
V	• • • —	• • • —
W	• — —	• — —
X	— • • —	— • • —
Y	— • — —	— • — —
Z	— — • •	— — • •
&		• — • • •

There are no space letters in the Continental Code

C, O, R, Y, Z and & are composed of dots and spaces
T is a short dash
L is a longer dash
Zero (0) is usually abbreviated to T

Figures

	Continental	Morse
1	• — — — —	• — — — •
2	• • — — —	• • — — •
3	• • • — —	• • • — •
4	• • • • —	• • • • —
5	• • • • •	— — —
6	— • • • •	• • • • • •
7	— — • • •	— — • •
8	— — — • •	— • • • •
9	— — — — •	— • • —
0	— — — — —	— — — —

Punctuation

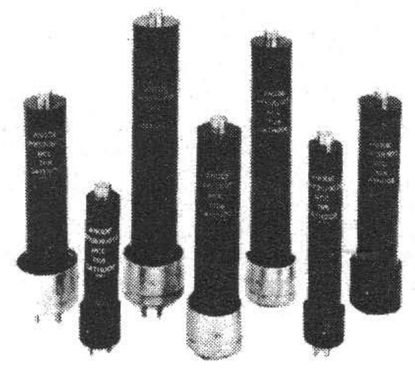
	Continental	Morse
(.)	• — • — • —	• • — — • •
(,)	— — • • — —	• — • —
(?)	• • — — • •	— • • — •
(:)	— — — • • •	— • — • •
(;)	— • — • — •	• • • • • •
(-)	— • • • • —	• • • • — • •
(!)	None at present	— — — •
(')	• — — — — •	• • — — • • — •
(/)	— • • — •	• • — — •
( )	— • — — • —	• — — • — •
( )		• • • • • — • •
(")	• — • • — •	• • — • — •
(")		• • — • — • — •

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QRRR (The land SOS) To be used only by a station in the affected area when calling with an emergency message.

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HVK1130/371	0.25	25.0	30.0	50	33.50
HVK1115/575	1.5	15.0	18.0	50	18.00
HVK1144/575	1.5	15.0	18.0	125	60.00
HVK1145/576	0.5	25.0	30.0	50	27.25
HVK1126/673	1.5	15.0	18.0	125	60.00
HVK1109/866	0.5	10.0	12.0	50	7.00
HVK1139/866	0.5	10.0	17.0	50	13.00
HVK1110/872	1.25	10.0	12.0	60	13.10
HVK1138/872	1.25	10.0	17.0	60	17.80
HVK1117/869	2.5	20.0	28.0	125	96.00
HVK1121/8008	1.25	10.0	12.0	60	13.10
HVK1146/8008	1.25	10.0	17.0	60	17.80
HVK1129/8020	0.10	40.0	42.0	50	38.50

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AC3 ..... Sikkim
AC4 ..... Tibet
AC ..... Bhutan
AP ..... East Pakistan
AP ..... West Pakistan
BV ..... Formosa
BY ..... China
*C9 ..... Manchuria
CE ..... Chile
CE9AA-AM,FB8Y,KC4,LA,LU-Z,OR4,UA1,VKØ,VP8,ZL5,8J ... Antarctica
CE9AN-AZ (See VP8)
CEØA ..... Easter Island
CEØX ..... San Felix
CEØZ ..... Juan Fernandez arch.
CM, CO ..... Cuba
*CN2 ..... Tangier
CN2, 8, 9 ..... Morocco
CP ..... Bolivia
CR 3, 5 ..... Portuguese Guinea
CR4 ..... Cape Verde Islands
CR5 ..... Principe, Sao Thome
CR6 ..... Angola
CR7 ..... Mozambique
*CR8 ..... Damao, Diu
*CR8 ..... Goa
CR8, CR1Ø ..... Portuguese Timor
CR9 ..... Macao
CT1 ..... Portugal
CT2 ..... Azores
CT3 ..... Madeira Islands
CX ..... Uruguay
DJ,DK,DL,DM ..... Germany
DU ..... Philippine Islands
EA ..... Spain
EA6 ..... Balearic Islands
EA8 ..... Canary Islands
EA9 ..... Ifni
EA9 ..... Rio de Oro
EA9 ..... Spanish Morocco
EAØ ..... Spanish Guinea
EI ..... Republic of Ireland
EL ..... Liberia
EP ..... Iran
*ET2 ..... Eritrea
ET3 ..... Ethiopia
F ..... France
FA (See 7X)
FB8Z ..... Amsterdam & St. Paul Is.
FB8Y (See CE9AA-AM)
FB8W ..... Crozet Is.
FB8X ..... Kerguelen Islands
FB8 (See FH8)
FB8 (See 5R8)
FB8 (See FR7)
*FC ..... Corsica
FD (See 5V)
FE8 (See TJ)
FF4 (See TU)
FF7 (See 5T)
FF8 (See TY)
FF8 (See TZ)
FF8 (See 5U7)
FF8 (See XT)
FF8 (See 6W8)
*FF8 ..... French West Africa
FG7 ..... Guadeloupe
FH8, FB8 ..... Comoro Islands
*FI8 ..... French Indo-China
FK8 ..... New Caledonia
FL8 ..... French Somaliland
FM7 ..... Martinique
*FN ..... French India
FO8 ..... Clipperton Island
FO8 ..... French Oceania
FO8M ..... Maria Theresa
FP8 ..... St. Pierre & Miquelon Is.
FQ8 (See TL)
FQ8 (See TT)
FQ8 (See TN)
FQ8 (See TR)
*FQ8 ..... French Equatorial Africa
*FR7 ..... Glorioso Islands
*FR7 ..... Juan de Nova
FR7 ..... Reunion
FR7 ..... Tromelin
FS7 ..... Saint Martin
FU8 (See YJ)
FW8 ..... Wallis & Futuna Islands
FY7 ..... French Guiana & Inini
G ..... England
GC ..... Guernsey & Dependencies
GC ..... Jersey Island
GD ..... Isle of Man
GI ..... Northern Ireland
GM ..... Scotland
GW ..... Wales
HA,HG ..... Hungary
HB ..... Switzerland
HBØ,HE ..... Liechtenstein
HC ..... Ecuador
HC8 ..... Galapagos Islands
HE (See HBØ)
HH ..... Haiti
HI ..... Dominican Republic
HK ..... Colombia
HKØ ..... Bajo Nuevo
HKØ ..... Malpelo Is.
HKØ ..... San Andres & Providencia
HKØ (See KS4B)
HL, HM ..... Korea
HP ..... Panama
HR ..... Honduras
HS ..... Thailand
HV ..... Vatican
HZ, 7Z ..... Saudi Arabia
I,IT ..... Italy
*I1 ..... Trieste
*I5 ..... Italian Somaliland
IS1 ..... Sardinia
JA,JH,KA ..... Japan
JT ..... Mongolia
JX,LA/P ..... Jan Mayen
JY ..... Jordan
JW,LA/P ..... Svalbard
*JZØ ..... Netherlands New Guinea
K, W ..... United States of America
KA (See JA)
KA1 (See KG6I)
KB6 ..... Baker, Howland & American Phoenix Islands
KC4 (See CE9AA-AM)
KC4 ..... Navassa Island
KC6 ..... Eastern Caroline Isls.
KC6 ..... Western Caroline Isls.
KG1 (See 0X)
KG4 ..... Guantanamo Bay
KG6 ..... Guam
KG6I,KA1 ..... Bonin & Volcano Islands
KG6I,KA1 ..... Marcus Island
KG6R,S,T ..... Mariana Islands
KH6 ..... Hawaiian Islands
KH6 ..... Kure Island
KJ6 ..... Johnston Island
KL7 ..... Alaska
KM6 ..... Midway Islands
KP4 ..... Puerto Rico
KP6 ..... Palmyra Group, Jarvis Is.
KR6,8 ..... Ryukyu Islands
KS4B,HKØ ..... Serrana Bank & Roncador Cay
KS4 ..... Swan Islands
KS6 ..... American Samoa
KV4 ..... Virgin Islands
KW6 ..... Wake Island
KX6 ..... Marshall Islands
KZ5 ..... Canal Zone
LA,LG ..... Norway
LA/P (See JX,JW)
LA/G (See 3Y)
LA (See CE9AA-AM)
LU ..... Argentina
LU-Z (See CE9AA-AM,P8,VP8)
LX ..... Luxembourg
LZ ..... Bulgaria
M1 (See 9A1)
MP4B ..... Bahrein
MP4Q ..... Qatar
MP4M,VS9O ..... Sultanate of Muscat & Oman
MP4D,T ..... Trucial Oman
0A ..... Peru
OD5 ..... Lebanon
OE ..... Austria
OH,OF ..... Finland
OHØ ..... Aland Islands
OK ..... Czechoslovakia
ON ..... Belgium
OQ5, Ø (See 9Q5)
OR4 (See CE9AA-AM)
OX,KG1,XP ..... Greenland
OY ..... Faroe Islands
OZ ..... Denmark
PA,PE,PI ..... Netherlands
PJ ..... Netherlands Antilles
PJ-M,S ..... Sint Maarten
PK (See 8F)
*PK1, 2, 3 ..... Java
*PK4 ..... Sumatra
*PK5 ..... Netherlands Borneo
*PK6 ..... Celebes & Molucca Islands
PX ..... Andorra
PY ..... Brazil
PYØ ..... Fernando de Noronha
PYØ ..... St. Peter & St. Paul's Rocks
PYØ ..... Trindade & Martim Vaz Is.
PZ1 ..... Surinam
SK,SL,SM ..... Sweden
SP ..... Poland
ST2 ..... Sudan
SU ..... Egypt
SV ..... Crete
SV ..... Dodecanese
SV ..... Greece
TA ..... Turkey
TF ..... Iceland
TG ..... Guatemala
TI ..... Costa Rica
TI9 ..... Cocos Island
TJ,FE8 ..... Cameroun
*TL ..... Central African Rep.
*TN ..... Congo Rep.
*TR ..... Gabon Rep.
*TT ..... Chad Rep.
*TU ..... Ivory Coast
*TY ..... Dahomey Rep.
*TZ ..... Mali Rep.
UA, UV, UW1-6, UN1 ..... European Russian S.F.S.R.
UA1 ..... Franz Josef Land
UA1 (See CE9AA-AM)
UA2 ..... Kaliningradsk
UA,UV,UW9,Ø ..... Asiatic R.S.F.S.R.
UB5,UT5,UY5 ..... Ukraine
UC2 ..... White Russian, S.S.R.
UD6 ..... Azerbaijan
UF6 ..... Georgia
UG6 ..... Armenia
UH8 ..... Turkoman
UI8 ..... Uzbek
UJ8 ..... Tadzhik
UL7 ..... Kazakh
UM8 ..... Kirghiz
*UN1 ..... Karelo-Finnish Republic
UO5 ..... Moldavia
UP2 ..... Lithuania
UQ2 ..... Latvia
UR2 ..... Estonia
VE,VO,3B,3C ..... Canada
VK ..... Australia (inc. Tasmania)
VK ..... Lord Howe Island
VK4 ..... Willis Islands
VK9, ZC3 ..... Christmas Island
VK9 ..... Cocos Islands
VK9 ..... Nauru Island
VK9 ..... Norfolk Island
VK9 ..... Papua Territory
VK9 ..... Territory of New Guinea
VKØ (See CE9AA-AM)
VKØ ..... Heard Island
VKØ ..... Macquarie Island
VO (See VE)
*VO ..... Newfoundland, Labrador
VP1 ..... British Honduras
*VP2K ..... Anguilla
*VP2A ..... Antigua, Barbuda
*VP2V ..... British Virgin Islands
*VP2D ..... Dominica
*VP2G ..... Grenada & Dependencies
*VP2M ..... Montserrat
*VP2K ..... St. Kitts, Nevis
*VP2L ..... St. Lucia
*VP2S ..... St. Vincent & Dependencies
VP3 (See 8R)
VP4 (See 9Y4)
VP5 (See ZF1)
VP5 (See 6Y5)
VP5 ..... Turks & Caicos Islands
VP6 (See 8P)
VP7 ..... Bahama Islands
VP8 (See CE9AA-AN)
VP8 ..... Falkland Islands
VP8, LU-Z ..... So. Georgia Is.
VP8, LU-Z ..... So. Orkney Is.
VP8, LU-Z ..... So. Sandwich Is.
VP8,LU-Z,CE9AN-AZ ..... So. Shetland Is.
VP9 ..... Bermuda Islands
VQ1 ..... Zanzibar
VQ2 (See 9J2)
VQ3 (See 5H3)
VQ4 (See 5Z4)
VQ5 (See 5X5)
*VQ6 ..... British Somaliland
VQ8 ..... Agalega & St. Brandon
VQ8 ..... Mauritius
VQ8 ..... Rodriguez Island
VQ9 ..... Aldabra
VQ9 ..... Chagos Islands
VQ9 ..... Desroches
VQ9 ..... Farquhar
VQ9 ..... Seychelles
VR1 ..... British Phoenix Islands
VR1 ..... Gilbert & Ellice Isls. & Ocean Island
VR2 ..... Fiji Islands
VR3 ..... Fanning & Christmas Is.
VR4 ..... Solomon Islands
VR5 ..... Tonga Islands
VR6 ..... Pitcairn Island
*VS1,9M4,9V1 ..... Singapore
VS1, 9M2 (See 9M2, 4)
VS2 (See 9M2)
*VS4 ..... Sarawak
VS4, ZC5 (See 9M6, 8)
VS5 ..... Brunei
VS6 ..... Hong Kong
VS9A,P,S ..... Aden & Socotra
VS9K ..... Kamaran Is.
*VS9H ..... Kuria Muria Isls.
VS9M (See 8Q)
VS90 (See MP4M)
VU ..... Andaman & Nicobar Isls.
VU ..... India
VU ..... Laccadive Islands
W (See K)
XE,XF,4A ..... Mexico
XF4 ..... Revilla Gigedo
XP (See 0X)
*XT ..... Voltaic Rep.
XU ..... Cambodia
XV5 (See 3W8)
XW8 ..... Laos
XZ2 ..... Burma
YA ..... Afghanistan
YI ..... Iraq
YJ,(FU8) ..... New Hebrides
YK ..... Syria
YN, YNØ ..... Nicaragua
YO ..... Rumania
YS ..... Salvador
YU ..... Yugoslavia
YV ..... Venezuela
YVØ ..... Aves Island
ZA ..... Albania
ZB1 (See 9H1)
ZB2 ..... Gibraltar
ZC3 (See VK9)
ZC4 (See 5B4)
ZC5 (See 9M6, 8)
*ZC5 ..... British North Borneo
*ZC6 ..... Palestine
ZD1 (See 9L1)
ZD2 (See 5N2)
ZD3 ..... The Gambia
ZD4 (See 9G1)
*ZD4 ..... Gold Coast, Togoland
ZD5, ZS7 ..... Swaziland
ZD6 (See 7Q7)
ZD7 ..... St. Helena
ZD8 ..... Ascension Island
ZD9 ..... Tristan da Cunha & Gough Island
ZE ..... Rhodesia
ZF1,VP5 ..... Cayman Islands
ZK1 ..... Cook Islands
ZK1 ..... Manihiki Islands
ZK2 ..... Niue
ZL ..... Auckland Is. & Campbell Is.
ZL ..... Chatham Islands
ZL ..... Kermadec Islands
ZL ..... New Zealand
ZL5 (See CE9AA-AM)
ZM6 (See 5W1)
ZM7 ..... Tokelaus
ZP ..... Paraguay
ZS1, 2, 4, 5, 6 ..... South Africa
ZS2 ..... Prince Edward & Marion Is.
ZS3 ..... Southwest Africa
ZS7 (See ZD5)
ZS8 (See 7P8)
ZS9 ..... Botswana
1M ..... Minerva Reefs
1S ..... Spratly Is.
3A ..... Monaco
3B, 3C (See VE)
3V8 ..... Tunisia
3W8, XV5 ..... Vietnam
3X, (7G) ..... Rep. of Guinea
3Y, LA/G ..... Bouvet Island
4A (See XE)
4S7 ..... Ceylon
4U ..... I.T.U. Geneva
4W ..... Yemen
4X, 4Z ..... Israel
5A ..... Libya
5B4, ZC4 ..... Cyprus
5H3, VQ3 ..... Tanganyika
5N2, ZD2 ..... Nigeria
5R8, FB8 ..... Malagasy Rep.
*5T ..... Mauritania
*5U7 ..... Niger Rep.
5V ..... Togo Rep.
5W1, ZM6 ..... Western Samoa
5X5, VQ5 ..... Uganda
5Z4, VQ4 ..... Kenya
6Ø1, 2, 6 ..... Somali Rep.
*6W8, FF8 ..... Senegal Rep.
6Y5, VP5 ..... Jamaica
*7G1 (See 3X)
7P8, ZS8 ..... Lesotho
7Q7, ZD6 ..... Malawi
7X, FA ..... Algeria
7Z (See HZ)
*8F, PK ..... Indonesia
8J (See CE9AA-AM)
8P, VP6 ..... Barbados
8Q, VS9M ..... Maldive Islands
8R, VP3 ..... Guyana
8Z4 ..... Saudi Arabia/Iraq Neutral Zone
8Z5 (See 9K3)
9A1, (M1) ..... San Marino
*9G1, ZD4 ..... Ghana
9H1, ZB1 ..... Malta
9J2, VQ2 ..... Zambia
9K2 ..... Kuwait
9K3, 8Z5 ..... Kuwait/Saudi Arabia Neutral Zone
9L1, ZD1 ..... Sierra Leone
*9M2 ..... Malaya
*9M2, 4 ..... West Malaysia
9M4 (See VS1)
*9M6, 8 ..... East Malaysia
9N1 ..... Nepal
9Q5, OQ5, Ø ..... Rep. of the Congo
*9S4 ..... Saar
*9U5 ..... Burundi
*9U5 ..... Ruanda-Urundi
9V1 (See VS1)
*9X5 ..... Rwanda
9Y4, VP4 ..... Trinidad & Tobago
* ..... Blenheim Reef
* ..... Geyser Reef

*Consult current ARRL Operating Aid 7 for applicable footnote. Available free by request to ARRL Communications Dep't, 225 Main Street, Newington, Conn. 06111.

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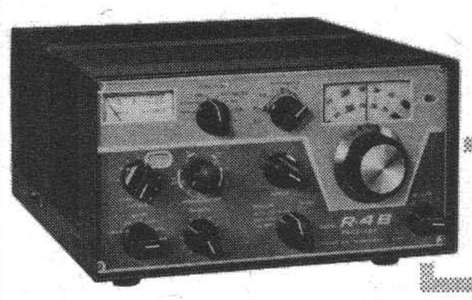


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ACCESSORIES: Noise Blanker, 100 kHz Calibrator, MS-4 Speaker, AL-4 Loop Antenna for .15-1.5 MHz, Transceive Adaptor (T-4XB), DC Power Cord, Crystals.

The pinnacle of receiver quality!



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COMMUNICATIONS RECEIVER

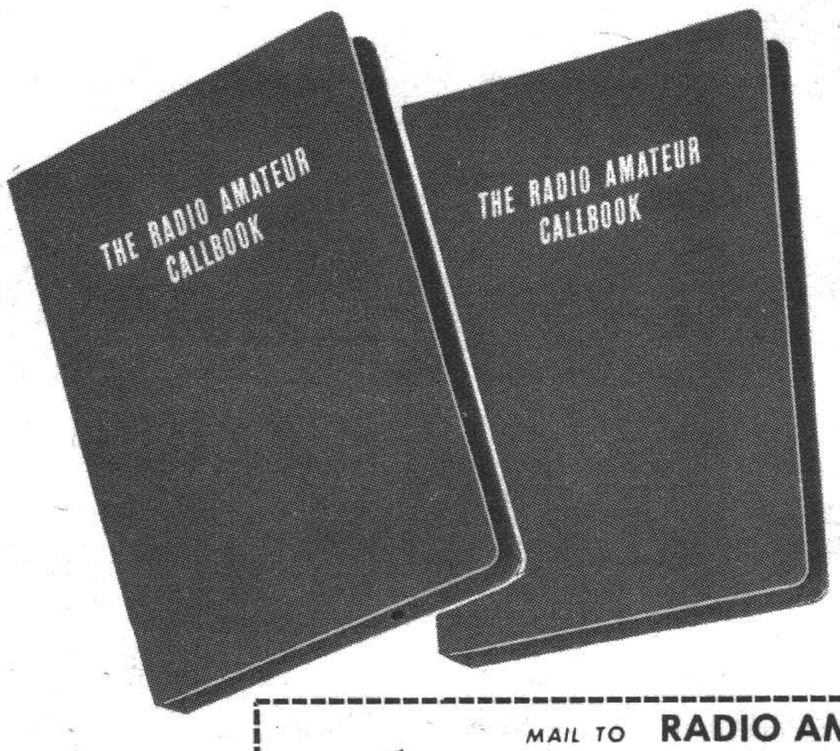
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Flat mailing charge .50
Amount Enclosed $_____

Name _____

Address _____
Street RFD

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Town or City State Zip Code

CENSUS OF AMATEUR RADIO LICENSES OF THE WORLD*

Prefix	Country	Number of radio amateur licenses
AC3	Sikkim	1
AP	Bangladesh	7
AP	Pakistan	29
A2	Botswana	20
A35	Tonga	4
A51	Bhutan	1
BV2	Taiwan (Formosa)	2
CE	Chile	2,511
CE9	South Shetland Is, Graham Land	26
CEØA	Easter Is	11
CEØZ	Juan Fernandez Is	11
CM,CO	Cuba	412
CN	Morocco	115
CP	Bolivia	554
CR3	Portuguese Guinea	3
CR4	Cape Verde Is	24
CR5	Sao Tome & Principe Is	2
CR6	Angola	344
CR7	Mozambique	236
CR8	Timor Is	2
CR9	Macao	1
CT1	Portugal	457
CT2	Azores Is	22
CT3	Madeira Is	24
CX	Uruguay	3,142
C21	Republic of Nauru	5
C31	Andorra	61
DA,B,C,F,J,K,L	West German Federal Republic	20,380
DM	East German Democratic Republic	2,977
DU	Philippines	292
EA	Spain	1,365
EA6	Balearic Is	30
EA8	Canary Is	175
EA9	Spanish Sahara, Ifni, Ceuta y Melilla	16
EI	Ireland	352
EL,5L	Liberia	161
EP	Iran	36
ET3	Ethiopia	16
F	France	6,490
FB8	Amsterdam, St. Paul, Crozet, Kerguelen, Tromelin Is	4
FG7	Guadeloupe	29
FH8	Comoro Is	4
FK8	New Caledonia	25
FL8	French Somaliland	22
FM7	Martinique	40
FO8	French Polynesia	54
FP8	St. Pierre & Miquelon Is	8
FR7	Reunion Is	32
FS7	Saint Martin	1
FU8,YJ	New Hebrides	23
FW8	Wallis & Futuna Is	2
FY7	French Guiana	23
G	England	16,837
GC	Channel Is	85
GD	Isle of Man	51
GI	Northern Ireland	395
GM	Scotland	1,002
GW	Wales	725
HA,HG	Hungary	650
HB	Switzerland	1,093
HBØ	Liechtenstein	2
HC	Ecuador	546
HC8	Galapagos Is	7
HH	Haiti	17
HI	Dominican Republic	637
HK	Colombia	2,210
HKØ	Bajo Nuevo Is	1
HKØ	Malpelo Is	1
HKØ	San Andres & Providencia Is	17
HM,HL	Korea	91
HP	Panama	221
HR	Honduras	177
HS	Thailand	65
HV	Vatican City	2
HZ	Saudi Arabia	3
I	Italy	5,597
IA5	Pianosa Is	1
IC8	Capri Is	9
IG9	Lampedusa Is	2
IH	Pantelleria Is	4
IS	Sardinia	94
IT	Sicily	297
JA,JH,JR	Japan	14,576
JD1	Minami-Tori-Shima Is	27
JT1	Mongolia	5
JW	Svalbard Is	11
JX	Jan Mayen Is	13
JY	Jordan	4
K,W	United States of America (48 states)	280,482
KA	U. S. Personnel in Japan	176
KB6	Baker, Canton, Enderbury, Howland & Phoenix Is	4
KC4	Navassa Is	1
KC4AA,US	Antarctica	17
KC6	Caroline Is	36
KG4	Guantanamo Bay, Cuba	28
KG6	Mariana Is	138
KH6	Hawaii	1,323
KJ6	Johnston Is	9
KL7	Alaska	1,045
KM6	Midway Is	12
KP4	Puerto Rico	870
KP6	Jarvis & Palmyra Is	6
KS4	Swan Is	6
KS6	American Samoa	55
KV4	Virgin Is	108
KW6	Wake Is	18
KX6	Marshall Is	52
KZ5	Canal Zone	209
LA,LF,LG,LJ	Norway	3,316
LU	Argentina	19,222
LX	Luxembourg	108
LZ	Bulgaria	586
M1	San Marino	4
MP4B	Bahrain Is	8
MP4D	Das Is	22
MP4M	Oman	16
MP4T	Trucial States	86
OA	Peru	1,318
OD5	Lebanon	169
OE	Austria	1,531
OH	Finland	2,336
OHØ	Aland Is	17
OJØ,OHØM	Market Reef	1
OK,OL	Czechoslovakia	2,588
ON	Belgium	1,429
OX	Greenland	90
OY	Faeroes Is	79
OZ	Denmark	3,453
PA,PE,PI	Netherlands	2,322
PJ	Netherlands Antilles - PJ2 - Curacao	40
	PJ3 - Aruba	26
	PJ4 - Bonaire	4
	PJ5 - St. Eustatius	1
	PJ6 - Saba Is	1
	PJ7 - Sint Maarten	11
PY	Brazil	13,144
PYØ	Fernando de Noronha Is	4
PZ	Surinam	51
SK,SL,SM	Sweden	4,400
SP	Poland	3,916
ST	Sudan	1
SU	Egypt	5
SV	Greece, Crete	210
TF	Iceland	36
TG	Guatemala	243
TI	Costa Rica	558
TI9	Cocos Is	3
TJ	Cameroon	17
TL8	Central African Republic	1
TN8	Republic of Congo (Brazzaville)	8
TR8	Gabon	15
TT8	Chad	4
TU2	Ivory Coast	56
TY	Dahomey	4
VE	Canada	12,892
	VE1 - 1,271	
	VE2 - 2,265	
	VE3 - 5,002	
	VE4 - 548	
	VE5 - 580	
	VE6 - 1,152	
	VE7 - 1,951	
	VE8 - 96	
	VEØ - 27	
VK	Australia	6,461
VO1	Newfoundland	265
VO2	Labrador	34
VP1	Belize (British Honduras)	47
VP2	Leeward-Windward Is	187
VP5	Turks & Caicos Is	7
VP7	Bahama Is	42
VP8	Falkland, South Georgia, South Orkney, South Sandwich, South Shetland Is	41
VP9	Bermuda Is	57
VQ9	Seychelles Is	13
VR1	British Phoenix, Ellice, Gilbert & Ocean Is.	5
VR2	Fiji Is	18
VR4	Solomon Is	10
VR6	Pitcairn Is	1
VS5	Brunei	13
VS6	Hong Kong	45
VU	India	617
W,K	United States of America (See K,W)	
XE,XF	Mexico	2,044
	XE1 - 1,016	
	XE2 - 921	
	XE3 - 107	
XT2	Upper Volta	4
XU	Cambodia/Khmer Republic	2
XW8	Laos	38
XZ	Burma	16
YA	Afghanistan	19
YB,YC,YD	Indonesia	1,083
YK	Syria	11
YN	Nicaragua	382
YO	Romania	1,223
YS	El Salvador	240
YU	Yugoslavia	2,046
YV	Venezuela	5,552
ZB2	Gibraltar	20
ZC4	Cyprus	23
ZD3	Gambia	6
ZD7	Saint Helena	2
ZD8	Ascension Is	29
ZD9	Tristan da Cunha & Gough Is	3
ZE	Rhodesia	181
ZF1	Cayman Is	30
ZK1	Cook Is	13
ZK2	Niue Is	2
ZL	New Zealand	4,641
ZP	Paraguay	319
ZS	South Africa	2,536
ZS3	South-West Africa	66
3A	Monaco	23
3B8	Mauritius Is	34
3D6	Swaziland	15
3V8	Tunisia	2
4S7	Sri Lanka (Ceylon)	55
4U	United Nations, Geneva	1
4W1	Yemen	9
4X4,4Z4	Israel	546
5A	Libya	33
5H3	Tanzania	8
5N2	Nigeria	7
5R8	Madagascar	17
5T5	Mauritania	5
5U7	Niger	8
5V	Togo	12
5W1	Western Samoa	15
5X5	Uganda	7
5Z4	Kenya	49
6W8	Senegal	26
6Y5	Jamaica	57
7G1	Republic of Guinea	1
7P8	Lesotho	14
7Q7	Malawi	19
7X	Algeria	62
7Z,HZ	Saudi Arabia	1
8J	Antarctica	2
8P6	Barbados Is	101
8Q6,VS9M	Maldive Is	11
8R	Guyana	22
9G1	Ghana	38
9H1	Malta	48
9H4	Gozo	11
9I,9J	Zambia	64
9K2	Kuwait	74
9L	Sierra Leone	6
9M2	West Malaysia	94
9M6	Sabah	6
9M8	Sarawak	5
9N1	Nepal	2
9Q5	Republic of Zaire	169
9U5	Burundi	9
9V1	Republic of Singapore	50
9X5	Rwanda	43
9Y4	Trinidad & Tobago Is	82

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DX OPERATING CODE

(For W/VE Amateurs)

Some amateur DXers have caused considerable confusion and QRM in their efforts to work DX stations. The points below, if observed by all W/VE amateurs, will help make DX more enjoyable for all.

1. Call DX only after he calls CQ, QRZ? or signs SK, or 'phone equivalents thereof. Make your calls short.

2. Do not call a DX station:
   a. On the frequency of the station he is calling until you are sure the QSO is over (SK).
   b. Because you hear someone else calling him.
   c. When he signs KN, AR or CL.
   d. Exactly on his frequency.
   e. After he calls a directional CQ, unless of course you are in the right direction or area.

3. Keep within frequency band limits. Some DX stations can get away with working outside, but you cannot.

4. Observe calling instructions given by DX stations.
   Example: "15U" means "call 15 kc. up from my frequency".
   "15D" means down, etc.

5. Give honest reports. Many DX stations depend on W/VE reports for adjustment of station and equipment.

6. Keep your signal clean. Key clicks, ripple, feedback or splatter give you a bad reputation and may get you a citation from FCC.

7. Listen and call the station you want. Calling CQ DX is not the best assurance that the rare DX will reply.

8. When there are several W or VE stations waiting, avoid asking DX to "listen for a friend". Also avoid engaging him in a rag chew against his wishes.

(For Overseas Amateurs)

To all overseas amateur stations:

In their eagerness to work you, many W and VE amateurs resort to practices which cause confusion and QRM. Most of this is good-intentioned but ill-advised; some of it is intentional and selfish. The key to the cessation of unethical DX operating practices is in your hands. We believe that your adoption of certain operating habits will increase your enjoyment of amateur radio and that of amateurs on this side who are eager to work you. We recommend your adoption of the following principles:

1. Do not answer calls on your own frequency.

2. Answer calls from W/VE stations only when their signals are of good quality.

3. Refuse to answer calls from other stations when you are already in contact with someone, and do not acknowledge calls from amateurs who indicate they wish to be "next".

4. Give everybody a break. When many W/VE amateurs are patiently and quietly waiting to work you, avoid complying with requests to "listen for a friend".

5. Tell listeners where to call you by indicating how many kilocycles up (U) or down (D) from your frequency you are listening. Examples: c.w. - "CQ DX CQ DX CQ DX 15U DE AC4YN AC4YN AC4YN 15U K"; 'phone - "Answer 15 kilocycles up from my frequency".

6. Use the ARRL-recommended ending signals, especially KN, to indicate to impatient listeners the status of the QSO. (KN means "Go ahead (specific station), all others keep out".

7. Let it be known that you avoid working amateurs who are constant violators of the above principles.

ARRL Communications Department

FEDERAL COMMUNICATIONS COMMISSION EXAMINATION POINTS

Examinations for commercial and amateur radio operator licenses are conducted at the following F.C.C. field offices on the days designated by the Engineer in Charge of each office.
Specific dates should be obtained from the Engineer in Charge.

Dist. No. — Office Location

1 - BOSTON, MASSACHUSETTS 02109
1600 Customhouse, India & State Streets

2 - NEW YORK, NEW YORK 10014
748 Federal Building, 641 Washington Street

3 - PHILADELPHIA, PENNSYLVANIA 19106
1005 U.S.Customhouse, 2nd & Chestnut Streets

4 - BALTIMORE, MARYLAND 21201
819 Federal Building, 31 Hopkins Plaza

5 - NORFOLK, VIRGINIA 23502
Military Circle, 870 N Military Hwy

6 - ATLANTA, GEORGIA 30303
1602 Gas Light Tower, 235 Peachtree St, NE

6S - SAVANNAH, GEORGIA 31402
238 Post Office Building, York & Bull Streets

7 - MIAMI, FLORIDA 33130
919 Federal Building, 51 S. W. First Avenue

7T - TAMPA, FLORIDA 33602
738 Federal Building, 500 Zack Street

8 - NEW ORLEANS, LOUISIANA 70130
829 Federal Building South, 600 South Street

8M - MOBILE, ALABAMA 36602
439 U. S. Court House, 113 St. Joseph Street

9 - HOUSTON, TEXAS 77002
5636 Federal Building, 515 Rusk Avenue

9B - BEAUMONT, TEXAS 77701
239 Federal Building, 300 Willow Street

10 - DALLAS, TEXAS 75202
707 Thomas Building, 1314 Wood Street

11 - LOS ANGELES, CALIFORNIA 90012
U. S. Courthouse, 312 N. Spring Street

11SD - SAN DIEGO, CALIFORNIA 92101
Fox Theatre Building, 1245 Seventh Avenue

11SP - SAN PEDRO, CALIFORNIA 90731
300 South Ferry Street

12 - SAN FRANCISCO, CALIFORNIA 94111
323A Custom House, 555 Battery Street

13 - PORTLAND, OREGON 97204
314 Multnomah Building, 319 S. W. Pine Street

14 - SEATTLE, WASHINGTON 98104
8012 Federal Office Building, 909 First Avenue

15 - DENVER, COLORADO 80202
504 New Customhouse,19th bet.California & Stout St.

16 - ST. PAUL, MINNESOTA 55101
691 Federal Building, 4th & Robert Streets

17 - KANSAS CITY, MISSOURI 64106
1703 Federal Building, 601 East 12th Street

18 - CHICAGO, ILLINOIS 60604
1872 U. S. Courthouse, 219 S. Dearborn Street

19 - DETROIT, MICHIGAN 48226
1054 Federal Building, Washington & LaFayette St.

20 - BUFFALO, NEW YORK 14203
328 Federal Office Building, 121 Ellicott St.

21 - HONOLULU, HAWAII 96808
502 Federal Building, 335 South King Street

22 - SAN JUAN, PUERTO RICO 00903
322 Federal Building

23 - ANCHORAGE, ALASKA 99501
54 U S Post Office Building, 4th bet. F & G St.

24 - WASHINGTON, D.C. 20554
Room 216, 1919 M Street, N.W.

GETTYSBURG, PENNSYLVANIA 17325
P. O. Box 441

SPECIAL ARRL QN SIGNALS FOR NET USE

QNA*	Answer in prearranged order.
QNB*	Act as relay Between . . . . . and . . . . .
QNC	All net stations Copy. I have a message for all net stations.
QND*	Net is Directed (controlled by net control station).
QNE*	Entire net please stand by.
QNF	Net is Free (not controlled).
QNG	Take over as net control station.
QNH	Your net frequency is High.
QNI	Net stations report In.* I am reporting into the net.
QNJ	Can you copy me? Can you copy . . . . . ?
QNK*	Transmit messages for . . . . . to . . . . .
QNL	Your net frequency is Low.
QNM*	You are QRMing the net. Please stand by.
QNN	Net control station is . . . . . * What station has net control?
QNO	Station is leaving the net.
QNP	Unable to copy you (or . . . . .).
QNQ*	Move frequency to . . . and wait for . . . to finish handling traffic. Then send him traffic for . . . . .
QNR*	Answer . . . and Relay (or Receive) traffic.
QNS	Following Stations are in the net.* (Follow with list). Request list of stations in the net.
QNT	Leaving net Temporarily (or for . . . minutes).
QNU*	The net has traffic for YOU. Stand by.
QNV*	Establish contact with . . . . . on this frequency. If successful, move to . . . and send him traffic for . . .
QNW	How do I route messages for . . . . . ?
QNX	You are excused from the net.* Request to be excused from the net.
QNY*	Shift to another frequency (or to . . . kc.) to clear traffic with . . . . .
QNZ	Zero beat your signal with mine.

*For use only by Net Control Station

Notes on the Use of QN Signals

1. The QN signals listed above are special ARRL signals for use in amateur c.w.nets only. Other meanings that may be used in other services do not apply.

2. Some QN signals are for use by net control stations only; these are marked with an asterisk (*). Others have slightly different meanings when used by the NCS and net stations; in this case, the meaning when used by the NCS is marked with an asterisk (*

3. Some QN signals have two meanings, the difference depending on how or by whom used. Examples: (a) QNC, when used as a preface to transmission of a message, carries its first meaning; when used by a station reporting into the net (e.g.,W9NCS DE W9NET QNI QNC), it carries its second meaning. (b) QNI, when used by the NCS, is a request for stations to report in; when used by a net station, it means that this station is reporting in. (c) QNJ, when used alone, carries its first meaning; when followed by a call, it carries the second meaning.

4. QN signals are never followed by a question mark, even though the meaning may be interrogatory.

5. Do not use QN signals on phone nets. Say it with words.

6. Use QN signals in nets only. They are not for use in casual amateur conversation.

7. Make frequent use of standard international "Q" signals in traffic nets, for meanings not covered by QN signals. Examples: QRU, QRV, QSV, QTA, QTB, QTX, etc.

ARRL Communications Department

ARRL Adopted ICAO Phonetic Alphabet

(International Civil Aviation Organization)

A	ALFA
B	BRAVO
C	CHARLIE
D	DELTA
E	ECHO
F	FOXTROT
G	GOLF
H	HOTEL
I	INDIA
J	JULIETT
K	KILO
L	LIMA
M	MIKE
N	NOVEMBER
O	OSCAR
P	PAPA
Q	QUEBEC
R	ROMEO
S	SIERRA
T	TANGO
U	UNIFORM
V	VICTOR
W	WHISKEY
X	X-RAY
Y	YANKEE
Z	ZULU

ON GOOD PHONE OPERATING

1. ***Listen much . . . with care.*** **Avoid distractions in your operating room. Tune the band well after each call.**
2. ***Time your calls; monitor your own frequency.*** **Call only when a station is free.**
3. ***Make short calls, with breaks to listen.*** **Speak clearly, at a steady, modest rate. Three short calls are better than one long one.**
4. ***Use push-to-talk technique . . . speak near the mike.*** **Watch the modulation indicator. Keep local background noise at a minimum.**
5. ***Make notes. Avoid missing points for comment.*** **Jot down topics to avoid repeats.**
6. ***Talk in connected thoughts and phrases.*** **Notes will help avoid mixing up subjects. Push-to-talk technique will keep brother amateurs from calling you a monologuist.**
7. ***Speak naturally.*** **QSOs need not be cut and dried. Make them interesting. Avoid exhibitionism. Use proper operating form to promote efficiency in communication and add respect and prestige for your station.**

Use of this standard list is recommended by ARRL. Haphazard selection of words often results in confusion. A degree of uniformity in use of phonetic words reflects favorably on your individual operating, and on the whole amateur service.

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2. DATE OF FILING: October 1, 1972
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MANAGER EDITOR *(Name and address)*: H. J. Nelson, 925 Sherwood Drive, Lake Bluff, Illinois 60044

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TELEGRAPHERS' ABBREVIATIONS IN CURRENT USE

‿ denotes short space, as in American Morse o, ee; c, te; &, es.
— denotes letters sent together, as in ar, sent .-.-.

- A -

aa	all after
ab	all before
abl	able
abt	about
ads,adr	address
adv	advise
af	Africa
aftrnn	afternoon
agn	again
ahd	ahead
alng	along
am	amplitude modulation
ani	any
anr	another
ant	antenna
app	appreciate
ar	end of message
as, as m	wait, wait a minute
au	fractions follow
aw	auf wiedersehn (Ger), see you later

- B -

b	be
b4	before
balun	balanced-to-unbalanced
bc,bcl	broadcast, broadcast listener
bcnu	be seeing you
bd	buenos dias (Sp), bad
bda	birthday
bee,bo,bth	both, as in "u5 bee", up both (Morse)
bfo	beat frequency oscillator
bjr	bon jour (Fr)
bk,bkg	back,break,black,book,breaking
bkr	breaker,circuit-breaker
bn	been,brown,between,buenas noches (Sp)
bq	answer to rq (request)
brg,brng	bearing,heading
bsr	bon soir (Fr)
btr	better
buk	book

- C -

c	yes
cd	card,could
cd,cud,cdnt	could,couldn't
cfm,cfmg	confirm,confirming
ck	check
ckt,cct	circuit
cl,clg	call,calling,closed
clbk	callbook
clix	clicks
clr	clear
cndx,condx,cdx	conditions
cnt,cnti,cnty	count, county
cnvn	convention
coz,cos,cuz,becuz	because
cpi	copy
cq	general call to all stations
cs	call sign,call letters
cua,cuagn	see you again
cul	see you later
cum,cm,cmg	come,coming
cupla	a couple of
cw	continuous wave,manual keying

- D -

da	day
dbl	double
dcn	direction
dct	direct
de	from
df	direction finder
dif,diff	difference
dlr,dld	dealer,deliver,delivered
dn,d	down (in frequency)
dnt,dmi	do not, don't mention it
dpe	dope,information
dr	dear
ds	thanks,danke schon (Ger)
dsnt	does not
dsw	goodbye,do svidaniya (Russian)
dunno	don't know
dx	distance, or rare station
dxpdn	dx expedition

- E -

eem	old man
eh	?
el,els	antenna element(s)
em	them
eni,enibdi,enihw	any,anybody,anyhow
ere	here
es,es	and (from Morse "&", sent ....)
eta	estimated time of arrival
etd	estimated time of departure
eu	Europe

- F -

fb,vfb	fine business,good (enthusiastic approval)
fd	field day,feed,food
fer	for
fiver	QSA-5
fld	field,filed
flr	floor
fm,frm	from,frequency modulation
fnd	friend, find, found
fni	funny
foxes	teleprinter test tapes
freq,fq	frequency
fwd	forward
fyi	for your information

- G -

ga	good afternoon,go ahead
gb	good bye
gd	good day, good
ges,gess	guess
gg	going
gl	good luck
gld	glad
gn,gng	gone,green,going
gnd	ground
gotta	got to,have to,must
gp	ground plane,group (word)
grs	groups (as in msg code groups)
gud	good
gtgs	greetings
gv,gvg	give,giving

- H -

hd,hrd	had,hard,heard
hdg	heading,antenna azimuth
hed	he would
hi	high, laughter, (sometimes !)
hlo	hello
hlv	hasta la vista (Sp),see you later
hpe,hpg	hope,hoping
hpi	happy
hpn,wa hpn	happen,what happened
hq,hdqtrs	headquarters
hr,hrg,hrs	here,hear,hour,hearing,here is,hours
hv,hvnt,hvg	have,haven't,having
hvi	heavy
hw,hws	how? how is?

- I -

i?	ready? here goes the tape
id	I would
ie	clear? (response: i-go, e-wait)
im	I'm,him,intermodulation
imi	?
info	information
irpt	I repeat

- K -

k	go ahead,end of transmission
ka	beginning of transmission (formal)
klix	clicks
klvb	que (ke) le vaya bien (Sp) "That it goes well with you"
kn	go ahead, but only the station(s) called, I will answer no other calls,known
knw	know

- L -

lkg	looking
ll	landline,telephone or telegraph
lng	long
lotsa	lots of
lp	long path (long way around earth)
lsn	listen
ltr	letter,later
lv,lvg	leave,leaving
lw	long wave,"lone wolf" (independent DXer)

- M -

mag,rag	magazine
mci,mci bcp	merci, merci beaucoup (Fr), thanks
mgr	manager
mi	my
mil,mill,ma	milliampere,typewriter
min	minute,minimum
mk	mark (opposite of space)
ml,mlg	mail,mailing
mng	morning,meaning
mni	many
mnl	manual
mo	moment
msg	message

- N -

n	no
nd	nothing doing
ng	no good
nil	nothing
nir	lazy "nil"
nm	nothing more,no more
nn	noon
no	know
nr	near,number
nvr	never
nw	now

- O -

ob,eeb	old boy
oc	old chap
ok,eek	all correct
ol	old lady
om,eem	old man
op,opr	operator
opn,opg	operation,operating
ot	old timer

- P -

pa	power amplifier
pbl,pbli	probable,preamble,probably
pctcs	practices
pd	period,paid
pdc	pure dc,clean note
pkg	package,parking
plsr	pleasure
ppgn	propagation
ppl	people
prtbl	portable
pse,pls,psd	please,pleased
psbl,psbli	possible, possibly
psn,posn	position
pt,ptd,ptg	point,part,pointed,pointing
pwr	power

- Q -

qhm	tuning from high frequency to middle of band
qlf	try sending with left foot awhile
qlm	tuning from low frequency to middle of band
qlz	operator too lazy
qmh	tuning from middle frequency to high frequency
qml	tuning from middle frequency to low frequency
qmt	try mailing your tfc
qrnn	man-made electrical noise
qsl	mail card confirming qso
qsll	send card after receiving mine
qst	of interest to all amateurs

- R -

r	received
rac	rectified ac
rc	rag chew
rcd,recd	received
rcr,recr,rcvr,rx	receiver
rd	read (copy),red
rdi,rdy	ready
rdo	radio,radio station
re	concerning
reg,regs	regular,regulations
rito	righto
rm	room
rng	running
rockbound,rockbnd	crystal controlled, no vfo
rpt	report,repeat
rq	request
rst	readability 1-5,strength 1-9,tone 1-9

- S -

sa,sez,sed,sa	say,says,said,South America
sae	self-addressed envelope
sase	self-addressed stamped envelope
sb,ssb	single sideband
sgd	signed
shd,shud,shudn't	should,shouldn't
sig,sigs	signal(s),signature
simo	simultaneously
sked	schedule
sl	see you later
sn	soon,seen,signal/noise
sp	short path (the closer great-circle path)
sri	sorry
ss	sweepstakes
ssn	season,as in "ssns gtgs"
stn	station
su	I'll see you
sum	some
sumbdi	somebody
svc	service
svl	several
sw	switch,short wave
sx	dollar sign "$"

- T -

tbl,trbl	trouble
tfc	traffic,messages
thr	there,their
tmw	tomorrow
tng	tuning,thing
tnk	think
tnsmsn	transmission
tr	transit,position,there,transmit/receive
T/R	transmit/receive
trix	tricks
tt,tts	that,that is
tu,tku,tnx,tks	thank you, thanks
tv,tvi	television,television interference
twx	telegram
tx,trans	transmitter

- U -

u,up	you,upward in frequency
ufb	vfb,very fine business (Rus)
uk	United Kingdom
ul,ud	you will,you would
undld	undelivered
unhrd	unheard
ur,urs	your,yours
ut	universal time,GMT,"Zebra" time

- V -

va	signing off (same as sk)
vert	vertical
vfb	very fine business
vfo	variable-frequency oscillator
vjo	viejo (Sp),old man
vox	voice-operated switch
vy,vri	very
vxo	variable crystal oscillator

- W -

w,wt	watt
wa	word after
wat,watsa	what,what do you say?
wb	word before
wd	word,would
wee	who?
wed	we would
wh	white
wid	with
wilco	will comply,will do
wk,wkg	week, weak, work, working, QSOing
wri	worry
wx,wea	weather

- X -

xtl	crystal
xtr,xmtr	transmitter
xq	fill, or repeat of unreceived copy

- Y -

yda	yesterday
yl,xyl	young lady,married young lady
yr	year,your

- Z -

z	Greenwich Mean Time, UT, "zebra"
zedder	New Zealander
zi	zone of the interior (continental USA)
zilch	nothing

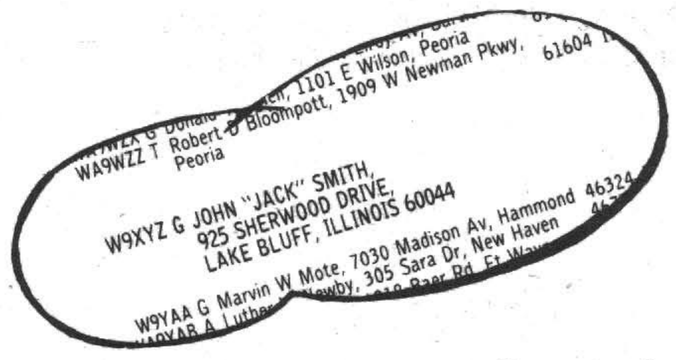
NUMBER CODE:

1 - a	6 - 6
2 - u	7 - b
3 - v	8 - d
4 - 4	9 - n
5 - e	0 - t

73	best wishes
88	love and kisses
99 (rare)	keep out

W3AFM

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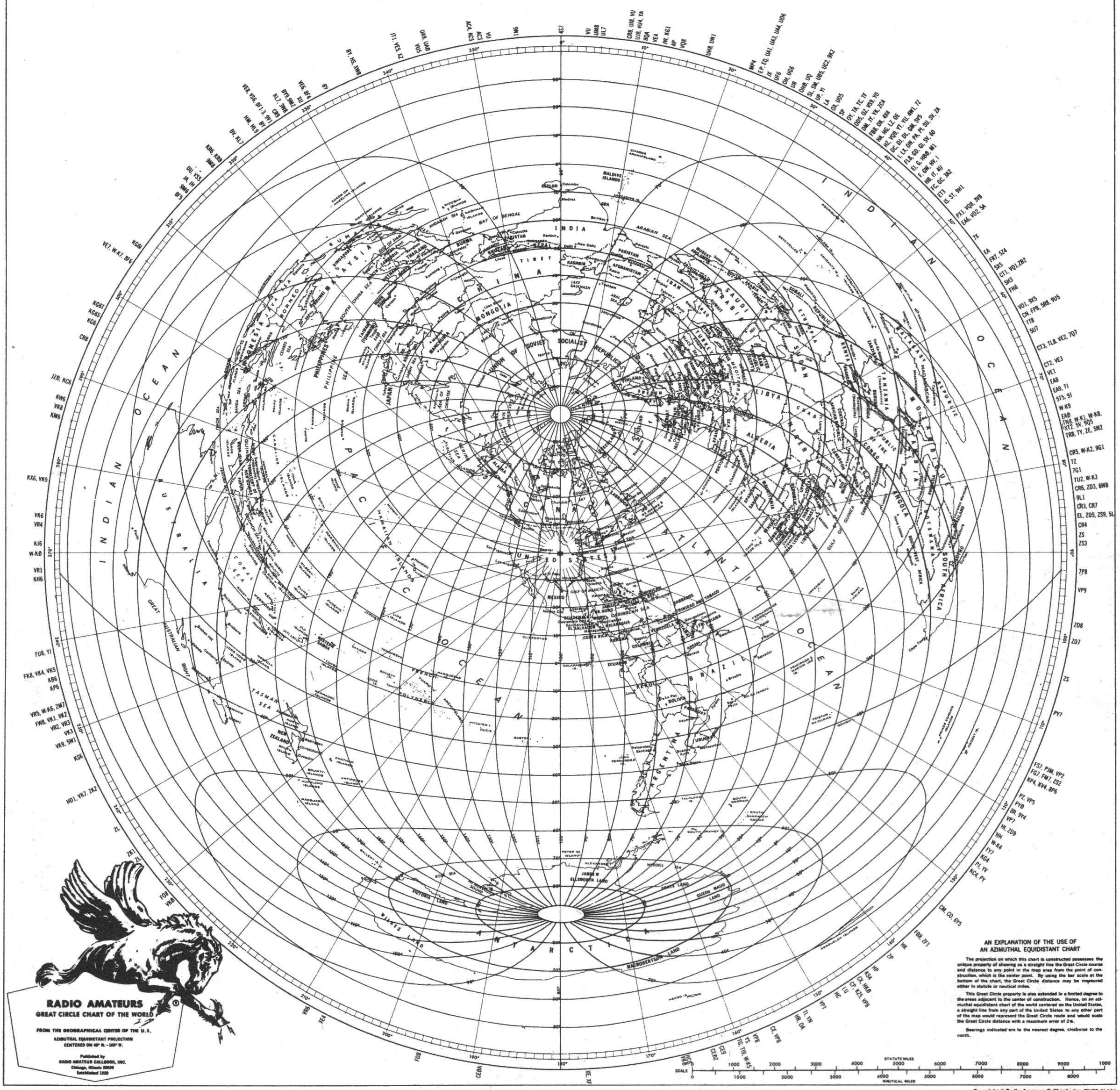
United States

The table below shows the great circle bearing in degrees and the distance in statute miles, from the point indicated above to countries throughout the world having licensed radio amateurs.

PREFIX	COUNTRY	BEARING	MILES
A2C,ZS9	BOTSWANA, MAFEKING	90	9229
AC3	SIKKIM, GANGTOK	351	7773
AC4	TIBET, LHASA	350	7550
AC5	BHUTAN	350	7764
AP	EAST PAKISTAN, DACCA	350	7969
AP	WEST PAKISTAN, KARACHI	13	7872
BV	TAIWAN (FORMOSA), TAIPEI	322	7228
BY	CHINA, PEKING	333	6461
C21,VK9	REP. OF NAURU	272	6379
C31,PX	ANDORRA, ANDORRA	50	4928
CE	CHILE, SANTIAGO	155	5388
CE9	S. SHETLAND IS	159	7496
CEØA	EASTER IS	189	4677
CEØX	SAN FELIX IS	161	4752
CEØZ	JUAN FERNANDEZ	163	5217
CM,CO	CUBA, HAVANA	133	1586
CN2,8,9	MOROCCO, CASABLANCA	62	4863
CP	BOLIVIA, LA PAZ	145	4396
CR3	PORTUGUESE GUINEA, BISSAU	84	5383
CR4	CAPE VERDE IS	86	4790
CR5	PRINCIPE & SAO TOME IS	78	7079
CR6	ANGOLA, NOVA LISBOA	83	8177
CR7	MOZAMBIQUE, LOURENCO MARQUES	85	9599
CR8	PORTUGUESE TIMOR	294	8899
CR9	MACAO	326	7625
CT1	PORTUGAL, LISBON	58	4621
CT2	AZORES IS	67	3764
CT3	MADEIRA IS	67	4473
CX	URUGUAY, MONTEVIDEO	145	5906
DC,DJ-L	W. GERMAN FEDERAL REP., BONN	40	4770
DM	E. GERMAN DEM. REP., BERLIN	36	4876
DU	PHILIPPINES, MANILA	316	7813
EA	SPAIN, MADRID	54	4801
EA6	BALEARIC IS	52	5139
EA8	CANARY IS	71	4765
EA9	CEUTA & MELILLA	58	4919
EA9	SPANISH SAHARA(RIO DE ORO)	73	5029
EI	IRELAND, DUBLIN	43	4234
EL,5L	LIBERIA, MONROVIA	71	7050
EP	IRAN, TEHRAN	24	6939
ET3	ETHIOPIA, ADDIS ABABA	47	8166
F	FRANCE, PARIS	44	4677
FB8Z	AMSTERDAM & ST. PAUL IS	36	12273
FB8W	CROZET IS	115	10991
FB8X	KERGUELEN IS	143	11635
FC	CORSICA	46	5244
FG7	GUADELOUPE IS	115	2827
FH8,FB8	COMORO IS	60	9482
FK8	NEW CALEDONIA, NOUMEA	255	7389
FL8	FRENCH SOMALILAND, DJIBOUTI	42	8139
FM7	MARTINIQUE	115	2923
FO8	FRENCH POLYNESIA, TAHITI	228	5104
FO8	CLIPPERTON IS	197	2153
FP8	ST. PIERRE & MIQUELON IS	63	2231
FR7	GLORIOSO IS	54	9606
FR7	JUAN DE NOVA	65	9729
FR7	REUNION IS, SAINT-DENIS	55	10477
FR7	TROMELIN	50	10170
FS7	SAINT MARTIN IS	114	2684
FU8,YJ	NEW HEBRIDES, VILA	257	7117
FW8	WALLIS & FUTUNA IS	251	6176
FY7	FRENCH GUIANA, CAYENNE	36	8955
G	ENGLAND, LONDON	43	4524
GC	GUERNSEY & DEPENDENCIES	46	4527
GC	JERSEY IS	46	4527
GD	ISLE OF MAN, DOUGLAS	42	4271
GI	NORTHERN IRELAND, BELFAST	41	4167
GM	SCOTLAND, GLASGOW	40	4202
GW	WALES, CARDIFF	44	4415
HA,HG	HUNGARY, BUDAPEST	38	5357
HB	SWITZERLAND, BERN	43	4944
HBØ,HE	LIECHTENSTEIN, VADUZ	42	5052
HC	ECUADOR, QUITO	148	3104
HC8	GALAPAGOS IS	165	2846
HH	HAITI, PORT-AU-PRINCE	123	2216
HI	DOMINICAN REP., SANTO DOMINGO	122	2356
HK	COLOMBIA, BOGOTA	140	2981
HKØ	MALPELO IS	151	2741
HKØ	SAN ANDRES & PROVIDENCIA IS	143	2205
HM,HL9	KOREA, SEOUL	325	6280
HP	PANAMA, PANAMA	145	2482
HR	HONDURAS, TEGUCIGALPA	153	1972
HS	THAILAND, BANGKOK	336	8470
HV	VATICAN CITY	45	5358
HZ,7Z	SAUDI ARABIA, MECCA	39	7444
I,IRØ	ITALY, ROME	45	5358
IS	SARDINIA	48	5337
IT	SICILY	47	5676
JA,JH,JR	JAPAN, TOKYO	315	5947
JD	OGASAWARA IS (BONIN)	308	6330
JD1	MINAMI-TORI-SHIMA IS (MARCUS)	298	5946
JT1	MONGOLIA, ULAN BATOR	342	6134
JW,LA/P	SVALBARD IS	12	3916
JX,LA/P	JAN MAYEN IS	22	3617
JY	JORDAN, AMMAN	36	6726
KB6	BAKER, CANTON, & OTHER IS	261	5482
KC4	NAVASSA IS	128	2139
KC6	CAROLINE IS	291	7044
KG4	GUANTANAMO BAY, CUBA	126	2034
KG6	GUAM	298	6750
KG6I	BONIN IS (OGASAWARA)	308	6330
KG6I	MARCUS IS (MINAMI-TORI-SHIMA)	298	5946
KG6R,S,T	MARIANA IS (SAIPAN)	297	6753
KH6	HAWAII, HONOLULU (KURE IS)	267	3624
KJ6	JOHNSTON IS	271	4421
KL7	ALASKA, ANCHORAGE	322	2536
KM6	MIDWAY IS	285	4351
KP4	PUERTO RICO, SAN JUAN	117	2541
KP6	JARVIS & PALMYRA IS	250	4665
KR6,8	RYUKYU IS (OKINAWA)	318	6873
KS4	SWAN IS	144	1866
KS4B,HKØ	SERRANA BANK & RONCADOR CAY	140	2177
KS6	AMERICAN SAMOA	247	5880
KV4	VIRGIN IS, CHARLOTTE AMALIE	116	2588
KW6	WAKE IS	287	5536
KX6	MARSHALL IS	278	5925
KZ5	CANAL ZONE, COLON	145	2482
LA,LF,LJ	NORWAY, OSLO	31	4507
LU	ARGENTINA, BUENOS AIRES	147	5846
LX	LUXEMBOURG, LUXEMBOURG	41	4778
LZ	BULGARIA, SOFIA	38	5694
M1,9A1	SAN MARINO, SAN MARINO	43	5263
MP4B	BAHRAIN IS	27	7514
MP4D	DAS IS	26	7626
MP4M	MUSCAT & OMAN, MASQAT	21	7817
MP4Q	QATAR	28	7578
MP4T	TRUCIAL STATES	25	7713
OA	PERU, LIMA	153	3897
OD5	LEBANON, BEIRUT	36	6579
OE	AUSTRIA, VIENNA	38	5210
OH	FINLAND, HELSINKI	26	4859
OHØ	ALAND IS	28	4740
OK,OL	CZECHOSLOVAKIA, PRAGUE	38	5048
ON	BELGIUM, BRUSSELS	41	4666
OX,XP	GREENLAND, GODTHAB	33	2531
OY	FAEROES IS, TORSHAVN	34	3921
OZ	DENMARK, COPENHAGEN	34	4740
PA,PE,PI	NETHERLANDS, AMSTERDAM	40	4659
PJ2	NETH. ANTILLES, CURACAO	127	2714
PJ3,9	NETH. ANTILLES, ARUBA	127	2618
PJ4,9	NETH. ANTILLES, BONAIRE	126	2756
PJ5	NETH. ANTILLES, ST. EUSTATIUS	115	2731
PJ6	NETH. ANTILLES, SABA	114	2684
PJ7	NETH. ANTILLES, SINT MAARTEN	114	2684
PY	BRAZIL, BRASILIA	128	5125
PY7	FERNANDO DE NORONHA	108	5266
PYØ	TRINDADE & MARTIM VAZ IS	118	6223
PZ	SURINAM, PARAMARIBO	118	3654
SK,SL,SM	SWEDEN, STOCKHOLM	29	4738
SP,3Z	POLAND, WARSAW	33	5165
ST	SUDAN, KHARTOUM	48	7537
SU	EGYPT, CAIRO	41	6676
SV	GREECE, ATHENS	41	5993
SV	CRETE	42	6189
SV5	DODECANESE IS	40	6204
TA,TC	TURKEY, ANKARA	34	6171
TF	ICELAND, REYKJAVIK	34	3431
TG	GUATEMALA, GUATEMALA CITY	158	1840
TI	COSTA RICA, SAN JOSE	150	2305
TI9	COCOS IS	156	2582
TJ,FE8	CAMEROON, YAOUNDE	72	7195
TL8,FQ8	CENTRAL AFRICAN REP., BANGUI	67	7542
TN8,FQ8	CONGO REPUBLIC, BRAZZAVILLE	76	7721
TR8,FQ8	GABON REPUBLIC, LIBREVILLE	77	7228
TT8,FQ8	CHAD REPUBLIC, FORT-LAMY	64	6957
TU2,FF4	IVORY COAST, ABIDJAN	82	6324
TY,FF8	DAHOMEY REP., PORTO NOVO	77	6643
TZ,FF8	MALI REPUBLIC, BAMAKO	79	5758
UA,K,V,W	EUROPEAN RUSS.S.F.S.R.,MOSCOW	22	5364
JA1,UK	FRANZ JOSEF LAND	4	4022
UA2,UK	KALININGRADSK	31	4986
UA,K,V,W	ASIATIC RUSSIAN S.F.S.R.	358	5870
UB,K,T5,Y5	UKRAINIAN S.S.R.	29	5630
UC2,UK	WHITE RUSSIAN S.S.R.	28	5250
UD6,UK	AZERBAIDZHAN S.S.R.	25	6535
UF6,UK	GEORGIAN S.S.R.	26	6342
UG6,UK	ARMENIAN S.S.R.	27	6442
UH8,UK	TURKMEN S.S.R.	15	6770
UI8,UK	UZBEK S.S.R.	12	6752
UJ8,UK	TADZHIK S.S.R.	7	6950
UL7,UK	KAZAKH S.S.R.	8	6313
UM8,UK	KIRGHIZ S.S.R.	4	6832
UO5,UK	MOLDAVIAN S.S.R.	32	5660
UP2,UK	LITHUANIAN S.S.R.	29	5042
UQ2,UK	LATVIAN S.S.R.	28	5015
UR2,UK	ESTONIAN S.S.R.	26	4911
VE1	CANADA, HALIFAX	67	1855
VE2	CANADA, MONTREAL	64	1374
VE3	CANADA, TORONTO	69	1113
VE4	CANADA, WINNIPEG	11	701
VE5	CANADA, SASKATOON	341	886
VE6	CANADA, EDMONTON	332	1134
VE7	CANADA, VANCOUVER	306	1279
VE8	CANADA, WHITEHORSE	326	2063
VK,AX	AUSTRALIA, BRISBANE	258	8257
VK2	LORD HOWE IS	250	8138
VK7	TASMANIA IS, HOBART	243	9066
VK9AA-MZ	PAPUA & NEW GUINEA TERR.	278	7834
VK9N	NORFOLK IS	248	7577
VK9X	CHRISTMAS IS	315	9824
VK9Y	COCOS IS	327	10245
VKØ	HEARD IS	162	11501
VKØ	MACQUARIE IS	225	8828
VO1	NEWFOUNDLAND, ST. JOHNS	61	2366
VO2	LABRADOR, HOPEDALE	45	2113
VP1	BRITISH HONDURAS, BELIZE	152	1755
VP2A	ANTIGUA, SAINT JOHNS	114	2780
VP2D	DOMINICA	115	2923
VP2E	ANGUILLA	114	2684
VP2G	GRENADA & DEPENDENCIES	119	3024
VP2K	ST. KITTS, NEVIS	115	2731
VP2L	ST. LUCIA	116	2972
VP2M	MONTSERRAT	114	2780
VP2S	ST. VINCENT & DEPENDENCIES	117	3021
VP2V	BRITISH VIRGIN IS	115	2636
VP5	TURKS & CAICOS IS	119	2068
VP7	BAHAMA IS, NASSAU	121	1695
VP8	FALKLAND IS	156	6833
VP8,LU-Z	SOUTH GEORGIA IS	146	7507
VP8,LU-Z	SOUTH ORKNEY IS	155	7647
VP8,LU-Z	SOUTH SANDWICH IS	146	7980
VP8,LU-Z	SOUTH SHETLAND IS	159	7515
VP9	BERMUDA IS, HAMILTON	95	2027
VQ1	ZANZIBAR	58	8990
VQ9	CHAGOS IS	14	10041
VQ9	SEYCHELLES IS	38	9603
VR1	BRITISH PHOENIX IS	266	6293
VR1	GILBERT, ELLICE & OCEAN IS	264	6135
VR2	FIJI IS, SUVA	251	6609
VR3	FANNING & CHRISTMAS IS	252	4424
VR4	SOLOMON IS	271	7157
VR5	TONGA IS, NUKUALOFA	244	6403
VR6	PITCAIRN IS	209	4898
VS5	BRUNEI	316	8616
VS6	HONG KONG	326	7625
VS9A,P,S	SOUTH YEMEN, ADEN	39	8148
VS9K	KAMARAN IS	40	7961
VU	INDIA, CALCUTTA	352	8055
VU4	LACCADIVE IS	9	8957
VU5	ANDAMAN & NICOBAR IS	344	8750
XE,XF,4A	MEXICO, MEXICO CITY	177	1461
XE4	REVILLAGIGEDO IS	207	1597
XT2,FF8	UPPER VOLTA, OUAGADOUGOU	76	6112
XU	CAMBODIA, PHNUM PENH	330	8503
XW8	LAOS, VIENTIANE	335	8165
XZ2	BURMA, RANGOON	342	8367
YA	AFGHANISTAN, KANDAHAR	13	7373
YB-D,8F,PK	INDONESIA, DJAKARTA	317	9554
YI	IRAQ, BAGHDAD	30	6898
YJ,FU8	NEW HEBRIDES, VILA	257	7117
YK	SYRIA, DAMASCUS	36	6668
YN,HT	NICARAGUA, MANAGUA	152	2126
YO	ROMANIA, BUCHAREST	36	5736
YS	EL SALVADOR, SAN SALVADOR	156	1927
YU,YT	YUGOSLAVIA, BELGRADE	38	5491
YV	VENEZUELA, CARACAS	127	2907
YVØ	AVES IS	125	2800
ZA	ALBANIA, TIRANA	41	5696
ZB2	GIBRALTAR	53	5357
ZC4,5B4	CYPRUS, NICOSIA	37	6458
ZD3	GAMBIA, BATHURST	84	5287
ZD5,ZS7	SWAZILAND, MBABANE	86	9494
ZD7	ST. HELENA IS	92	7776
ZD8	ASCENSION IS	99	6376
ZD9	TRISTAN DA CUNHA & GOUGH IS	121	7716
ZE	RHODESIA, SALISBURY	77	9174
ZF1,VP5	CAYMAN IS	135	1886
ZK1	COOK IS	234	5582
ZK1	MANIHIKI IS	242	5159
ZK2	NIUE IS	243	6071
ZL	NEW ZEALAND, AUCKLAND	238	7572
ZL	AUCKLAND & CAMPBELL IS	228	8455
ZL	CHATHAM IS	228	7528
ZL	KERMADEC IS	239	6955
ZM7	TOKELAU IS	251	5693
ZP	PARAGUAY, ASUNCION	141	5256
ZS1,2,4-6	SOUTH AFRICA, CAPE TOWN	104	9076
ZS2	PRINCE EDWARD & MARION IS	117	10323
ZS3	S.W. AFRICA (NAMIBIA),WINDHOEK	92	8641
3A	MONACO	46	5077
3B6,VQ8	AGALEGA IS	40	9939
3B8,VQ8	MAURITIUS IS	49	10550
3B9,VQ8	RODRIGUEZ IS	41	10738
3C,EAØ	EQUATORIAL GUINEA, BATA	75	7187
3V8	TUNISIA, TUNIS	50	5517
3W8,XV5	S. VIETNAM, SAIGON	328	8512
4S7	CEYLON, COLOMBO	0	9193
4U	UNITED NATIONS, GENEVA	45	4951
4W1,3	YEMEN, SANA	39	7995
4X4,4Z4	ISRAEL, TEL AVIV	37	6695
5A	LIBYA, TRIPOLI	51	5832
5H3,VQ3	TANGANYIKA, DAR-ES-SALAAM	59	9042
5N2,ZD2	NIGERIA, LAGOS	77	6643
5R8,FB8	MALAGASY REP., TANANARIVE	62	10061
5T5,FF7	MAURITANIA, NOUAKCHOTT	80	5126
5U7,FF8	NIGER, NIAMEY	72	6224
5V,FD	TOGO, LOME	78	6539
5W1,ZM6	WESTERN SAMOA, APIA	248	5929
5X5,VQ5	UGANDA, KAMPALA	60	8359
5Z4,VQ4	KENYA, NAIROBI	56	8636
6O1,2,6	SOMALI REP., MOGADISHO	46	8798
6W8,FF8	SENEGAL REP., DAKAR	83	5201
6Y5,VP5	JAMAICA, KINGSTON	131	2058
7G1,3X	REP. OF GUINEA, CONAKRY	85	5576
7P8,ZS8	LESOTHO, MASERU	93	9387
7Q7,ZD6	MALAWI, BLANTYRE	71	9289
7X,FA	ALGERIA, ALGIERS	53	5227
7Z,HZ	SAUDI ARABIA, MECCA	39	7504
8P6,VP6	BARBADOS IS, BRIDGETOWN	116	3068
8QA,VS9M	MALDIVE IS	10	9437
8R,VP3	GUYANA, GEORGETOWN	120	3463
8Z4	SAUDI ARABIA/IRAQ NEUTRAL ZONE	31	7171
9G1,ZD4	GHANA, ACCRA	79	6487
9H1,ZB1	MALTA, VALLETTA	48	5764
9I,9J,VQ2	ZAMBIA, LUSAKA	76	8889
9K2	KUWAIT, AL-KUWAYT	29	7250
9K3,8Z5	KUWAIT/S. ARABIA NEUTRAL ZONE	30	7198
9L1,ZD1	SIERRA LEONE, FREETOWN	86	5717
9M2,VS1	WEST MALAYSIA, KUALA LUMPUR	329	9157
9M6,VS4	EAST MALAYSIA, KUCHING	319	8972
9N1	NEPAL, KATMANDU	355	7729
9Q5,OQ5,Ø	REP. OF THE CONGO, KINSHASA	76	7721
9U5	BURUNDI, BUJUMBURA	65	8372
9V1,9M4	SINGAPORE	326	9226
9X5	RWANDA, KIGALI	63	8369
9Y4,VP4	TRINIDAD & TOBAGO IS	120	3075

RADIO AMATEURS GREAT CIRCLE CHART OF THE WORLD

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INTERNATIONAL POSTAL RATES

The following postal rates cover QSL cards, first class letters and air mail letters from the United States to Countries outside of the United States and Possessions.

FIRST CLASS RATES to countries other than Canada and Mexico, 1 ounce, 15¢; over 1 to 2 ounces, 26¢; over 2 to 4 ounces, 34¢; over 4 to 8 ounces, 76¢; over 8 ounces to 1 pound, $1.44; over 1 to 2 pounds, $2.40; and over 2 to 4 pounds, $3.84.

AIR MAIL RATES are the rate for each half ounce, except where indicated.

QSL CARDS and AEROGRAMMES (air letter sheets) may be sent to any country in the world by air mail for 15¢ (exception: to Canada and Mexico, QSL cards are 9¢ by air mail).

INTERNATIONAL REPLY COUPONS of United States issue may be purchased at United States post offices for 22¢ each. Each coupon is exchangeable at a post office in any country for a stamp or stamps representing the international postage on a single rate surface letter. The column marked "(Air) IRC" indicates the number of international reply coupons required to prepay an air mail letter of the first weight unit from the countries indicated to the United States.

These rates include all revisions up to press time of this issue.

	QSL cards	First class	Air mail	(Air) IRC
Afghanistan	$.10	$.15	$.21	5
Aland Is. (Finland)	.10	.15	.21	2
Albania	.10	.15	.21	4
Algeria	.10	.15	.21	2
Andorra	.10	.15	.21	2
Angola (Portugal)	.10	.15	.21	3
Argentina	.10	.15	.17	3
Ascension Is. (Great Britain)	.10	.15	.21	3
Australia	.10	.15	.21	4
Austria	.10	.15	.21	2
Azores Is. (Portugal)	.10	.15	.21	2
Bahama Is. (Great Britain)	.10	.15	.17	2
Balearic Is. (Spain)	.10	.15	.21	2
Barbados Is. (West Indies)	.10	.15	.17	3
Belgium	.10	.15	.21	2
Bermuda Is	.10	.15	.17	2
Bhutan	.10	.15	.21	
Bolivia	.10	.15	.17	2
Botswana	.10	.15	.21	5
Brazil	.10	.15	.17	2
Brunei	.10	.15	.21	8
Bulgaria	.10	.15	.21	3
Burma	.10	.15	.21	4
Burundi	.10	.15	.21	3
Cambodia	.10	.15	.21	3
Cameroon	.10	.15	.21	2
Canada	.06	.08	.11*	2
Canary Is. (Spain)	.10	.15	.21	2
Cape Verde Is. (Portugal)	.10	.15	.21	3
Cayman Is. (West Indies)	.10	.15	.17	3
Central African Republic	.10	.15	.21	2
Ceylon	.10	.15	.21	5
Chad	.10	.15	.21	2
Chile	.10	.15	.17	
China (Taiwan)	.10	.15	.21	3
China (Mainland)	.10	.15	.21	3
Colombia	.10	.15	.17	3
Comoro Is. (France)	.10	.15	.21	3
Congo (Brazzaville)	.10	.15	.21	2
Congo (Kinshasa)	.10	.15	.21	2
Cook Is. (New Zealand)	.10	.15	.21	3
Corsica (France)	.10	.15	.21	2
Costa Rica	.10	.15	.17	2
Cuba	.10	.15	.17	4
Cyprus	.10	.15	.21	4
Czechoslovakia	.10	.15	.21	2
Dahomey	.10	.15	.21	2
Denmark	.10	.15	.21	2
Dominican Republic	.10	.15	.17	2
Ecuador	.10	.15	.17	3
Egypt (United Arab Republic)	.10	.15	.21	2
El Salvador	.10	.15	.17	2
Ethiopia	.10	.15	.21	3
Faeroe Is. (Denmark)	.10	.15	.21	2
Falkland Is. (Great Britain)	.10	.15	.17	3
Fiji Is. (Great Britain)	.10	.15	.21	4
Finland	.10	.15	.21	2
France	.10	.15	.21	2
French Polynesia Is	.10	.15	.21	2
French Somaliland(Afars and Issas)	.10	.15	.21	2
Gabon Republic	.10	.15	.21	2
Gambia	.10	.15	.21	4
Germany, Western Zone	.10	.15	.21	2
Germany, Eastern Zone	.10	.15	.21	2
Ghana	.10	.15	.21	3
Gibralter (Great Britain)	.10	.15	.21	2
Gilbert and Ellice Is	.10	.15	.21	5
Great Britain	$.10	$.15	$.21	2
Greece (incl. Crete)	.10	.15	.21	2
Greenland (Denmark)	.10	.15	.21	2
Grenada & Grenadines	.10	.15	.17	4
Guadaloupe Is	.10	.15	.17	2
Guatemala	.10	.15	.17	2
Guiana, French	.10	.15	.17	2
Guinea, Portuguese	.10	.15	.21	2
Guinea, Republic of	.10	.15	.21	2
Guyana	.10	.15	.17	4
Haiti	.10	.15	.17	5
Honduras, British	.10	.15	.17	2
Honduras, Republic of	.10	.15	.17	3
Hong Kong	.10	.15	.21	5
Hungary	.10	.15	.21	2
Iceland	.10	.15	.21	2
India	.10	.15	.21	3
Indonesia	.10	.15	.21	3
Iran	.10	.15	.21	4
Iraq	.10	.15	.21	3
Ireland (Eire)	.10	.15	.21	3
Israel	.10	.15	.21	3
Italy	.10	.15	.21	2
Ivory Coast	.10	.15	.21	2
Jamaica	.10	.15	.17	
Japan	.10	.15	.21	2
Jordan	.10	.15	.21	3
Kenya	.10	.15	.21	4
Korea	.10	.15	.21	3
Kuwait	.10	.15	.21	4
Laos	.10	.15	.21	
Lebanon	.10	.15	.21	3
Leeward Is.(West Indies)	.10	.15	.17	3
Lesotho	.10	.15	.21	5
Liberia	.10	.15	.21	5
Libya	.10	.15	.21	2
Liechtenstein	.10	.15	.21	2
Luxembourg	.10	.15	.21	2
Macao (Portugal)	.10	.15	.21	3
Madeira Is. (Portugal)	.10	.15	.21	2
Malagasy Republic (Madagascar)	.10	.15	.21	3
Malawi	.10	.15	.21	6
Malaysia	.10	.15	.21	5
Maldive Is	.10	.15	.21	5
Mali Republic	.10	.15	.21	2
Malta (Great Britain)	.10	.15	.21	2
Martinique (France)	.10	.15	.17	2
Mauritania	.10	.15	.21	2
Mauritius (Great Britain)	.10	.15	.21	3
Mexico	.06	.08	.11*	2
Morocco	.10	.15	.21	2
Mozambique (Portugal)	.10	.15	.21	3
Muscat and Oman	.10	.15	.21	4
Nauru Is	.10	.15	.21	4
Nepal	.10	.15	.21	5
Netherlands	.10	.15	.21	2
Netherlands Antilles	.10	.15	.17	1
New Caledonia (France)	.10	.15	.21	2
New Guinea, N.E. (Australia)	.10	.15	.21	3
New Hebrides Is	.10	.15	.21	2
New Zealand	.10	.15	.21	3
Nicaragua	.10	.15	.17	4
Niger	.10	.15	.21	2
Nigeria	.10	.15	.21	3
Northern Ireland	.10	.15	.21	2
Norway	.10	.15	.21	2
Pakistan	$.10	$.15	$.21	2
Panama	.10	.15	.17	2
Papua Territory (Australia)	.10	.15	.21	3
Paraguay	.10	.15	.17	3
Persian Gulf Ports	.10	.15	.21	4
Peru	.10	.15	.17	3
Philippines	.10	.15	.21	3
Pitcairn Is. (Great Britain)	.10	.15	.21	
Poland	.10	.15	.21	2
Portugal	.10	.15	.21	2
Qatar	.10	.15	.21	4
Reunion Is. (France)	.10	.15	.21	2
Rhodesia	.10	.15	.21	5
Romania	.10	.15	.21	3
Rwanda	.10	.15	.21	2
Ryukyu Is	.10	.15	.21	
St. Helena Is. (Great Britain)	.10	.15	.21	3
St. Pierre and Miquelon Is.(France)	.10	.15	.17	2
Samoa, Western (Great Britain)	.10	.15	.21	4
Saudi Arabia	.10	.15	.21	3
Senegal	.10	.15	.21	2
Seychelles Is.(Great Britain)	.10	.15	.21	3
Sierra Leone	.10	.15	.21	3
Solomon Is. (Great Britain)	.10	.15	.21	5
Somalia	.10	.15	.21	
South Africa	.10	.15	.21	5
South-West Africa (Namibia)	.10	.15	.21	5
South Yemen	.10	.15	.21	5
Spain	.10	.15	.21	2
Spanish West Africa	.10	.15	.21	2
Sudan	.10	.15	.21	3
Surinam	.10	.15	.17	1
Swaziland	.10	.15	.21	5
Sweden	.10	.15	.21	
Switzerland	.10	.15	.21	2
Syria	.10	.15	.21	3
Tanzania	.10	.15	.21	4
Tasmania (Australia)	.10	.15	.21	4
Thailand	.10	.15	.21	3
Timor (Portugal)	.10	.15	.21	4
Togo	.10	.15	.21	2
Tonga Is. (Great Britain)	.10	.15	.21	3
Trinidad and Tobago Is.(Britain)	.10	.15	.17	2
Tristan de Cunha & Gough Is	.10	.15	.21	3
Tunisia	.10	.15	.21	2
Turkey	.10	.15	.21	3
Turks & Caicos Is.(Great Britain)	.10	.15	.17	2
Uganda	.10	.15	.21	4
United States of America - Domestic rates only	.06	.08	.11*	
U. S. S. R.	.10	.15	.21	
Upper Volta	.10	.15	.21	2
Uruguay	.10	.15	.17	2
Vatican City	.10	.15	.21	2
Venezuela	.10	.15	.17	2
Vietnam	.10	.15	.21	2
Virgin Is. (Great Britain)	.10	.15	.17	2
West Irian (Indonesia)	.10	.15	.21	3
Windward Is. (West Indies)	.10	.15	.17	2
Yemen	.10	.15	.21	
Yugoslavia	.10	.15	.21	3
Zambia	.10	.15	.21	
Zanzibar	.10	.15	.21	4

* Rate per ounce or fraction

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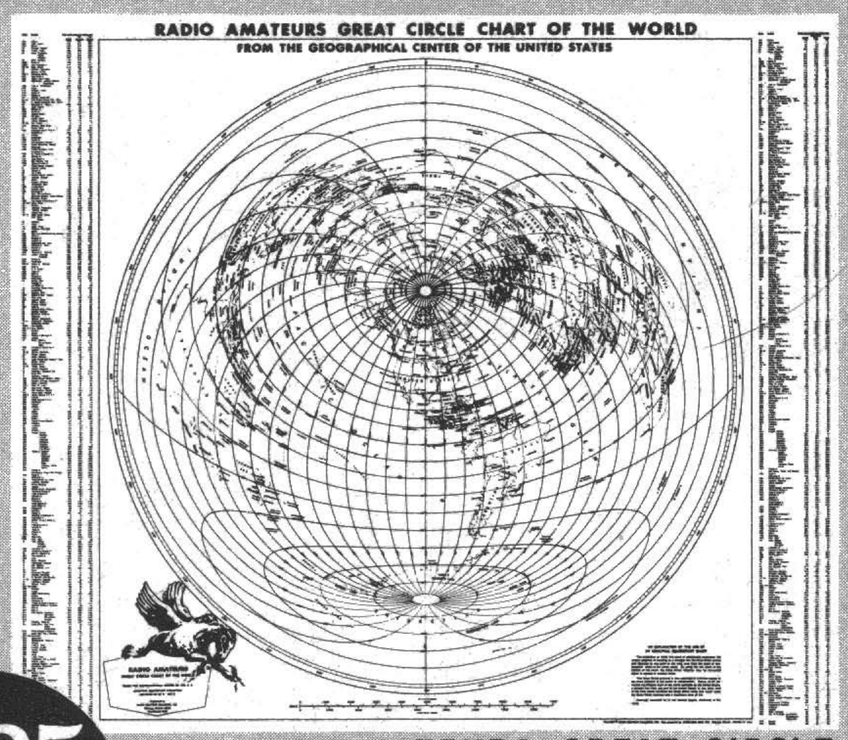
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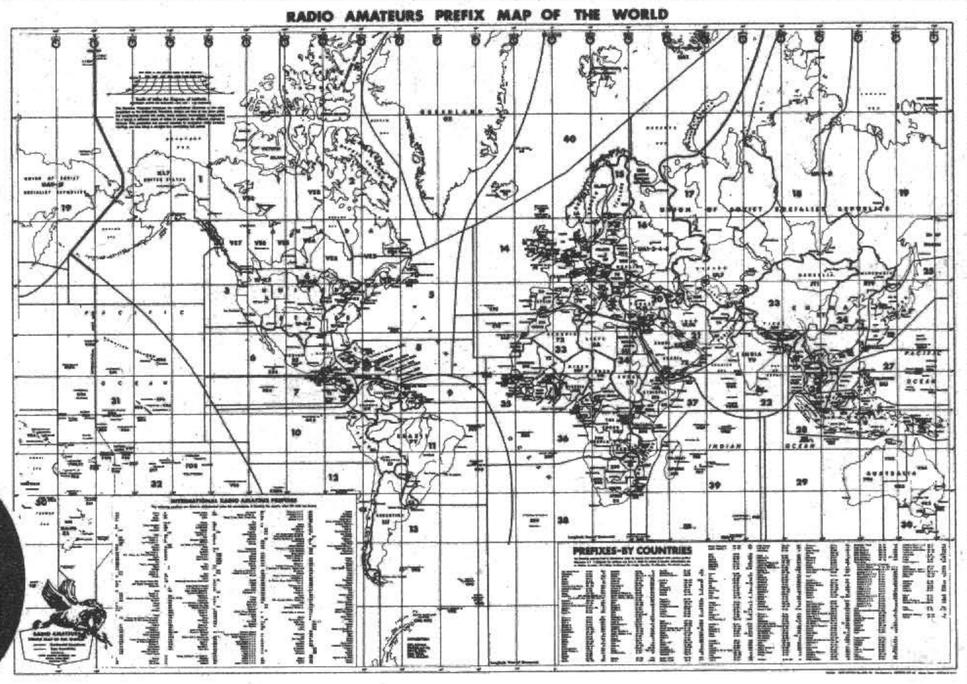


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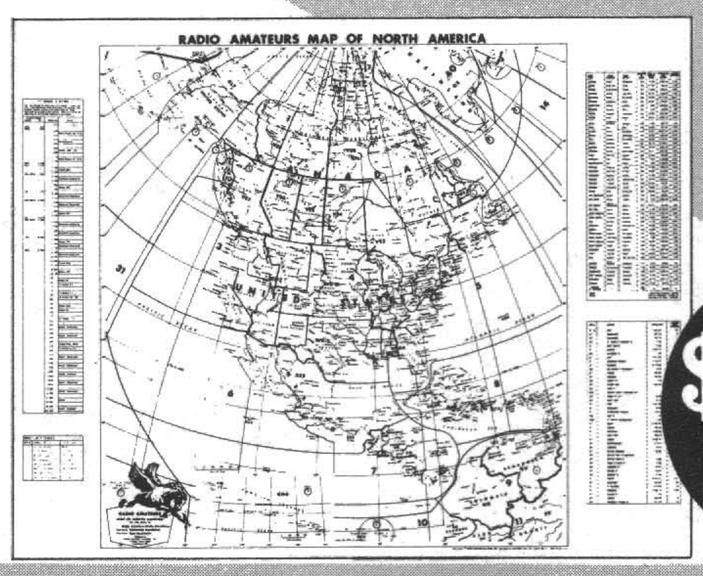


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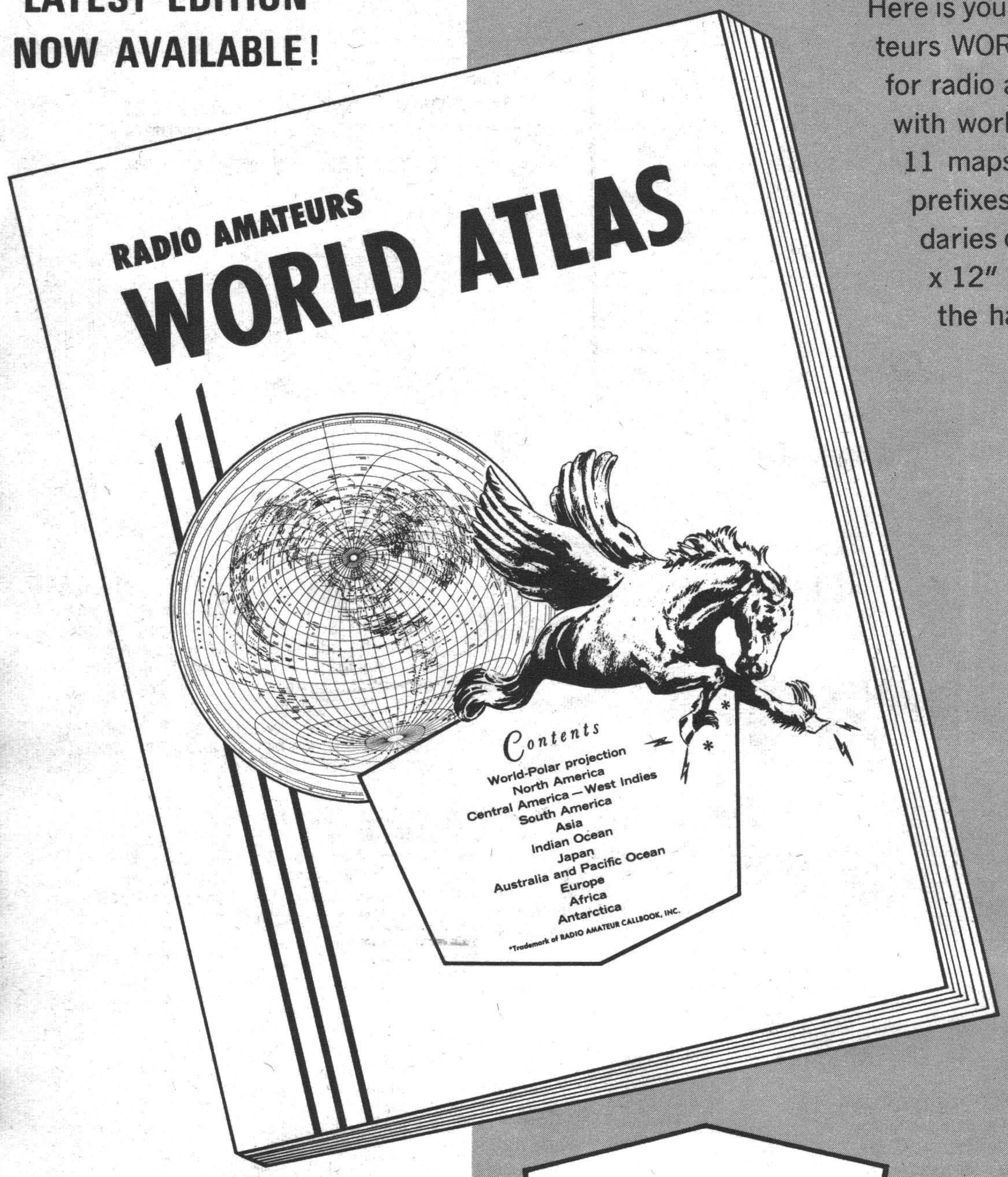
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STANDARD TIME THROUGHOUT THE WORLD

The standard time system is based on the theoretical division of the surface of the globe into 24 zones, each of 15° of longitude. The initial zone is the one which has as its central meridian the Greenwich Meridian and with the meridians 7° 30' E. and 7° 30' W. as its eastern and western limits. Time in this zone is called Greenwich Mean Time, or GMT. Places to the east of Greenwich have faster time than Greenwich, while places to the west have slower time. Not all countries follow the International Time Zone System, but some use the time of some principal city as a standard and others have no standard time.

Reference - "Standard Time Chart of the World" No. 5192, published by U. S. Navy Hydrographic Office, Washington, D.C.

The theoretical system described is applied, in a strict sense, only in oceanic regions. On land or on groups of islands the system is applied with certain local deviations, which, are rendered necessary by frontiers, convenience of an entire island group to maintain same zone time, etc. The time used in each country, whether it is the time of the corresponding zone or modified for reasons given, is an hour fixed by law and, for this reason, is called legal time, or more generally standard time.

Another deviation from this theoretical system is that certain countries, for economic reasons, modify their legal time for part of the year, especially in summer, by advancing it an hour or another fraction of time. Where such deviations are maintained on a year-round basis, the time kept is considered to be standard time.

Country	Standard or Local Time: Hours fast or slow of GMT	Time at 1200 hrs.GMT
Aden, Kamaran, Socotra Is	+ 3	15 00
Afghanistan	+ 4 1/2	16 30
Alaska, Juneau, Ketchikan, Sitka	− 8	04 00
Yakutat	− 9	03 00
Central part, Kodiak Is	− 10	02 00
West coast, Aleutian Is	− 11	01 00
Albania	+ 1	13 00
Algeria	+ 1	13 00
Amsterdam, St.Paul, Kerguelen Is	+ 5	17 00
Andorra	+ 1	13 00
Angola	+ 1	13 00
Argentina	− 4	08 00
Ascension Is, St.Helena Is	0	12 00
Australia, Western Australia	+ 8	20 00
Northern Territory, South Australia	+ 9 1/2	21 30
New South Wales, Queensland, Victoria, Lord Howe Is, Tasmania Is	+ 10	22 00
Austria	+ 1	13 00
Azores Is	− 1	11 00
Bahama Is	− 5	07 00
Bahrein Is	+ 4	16 00
Baker, Canton, Enderbury, Howland & Phoenix Is	− 11	01 00
Basutoland	+ 2	14 00
Bechuanaland	+ 2	14 00
Belgium	+ 1	13 00
Bermuda Is	− 4	08 00
Bhutan	+ 5 1/2	17 30
Bolivia	− 4	08 00
Bonin, Volcano, Mariana, Saipan, Tinian, Guam Is	+ 10	22 00
Borneo (Indonesia)	+ 7 1/2	19 30
Brazil, Fernando Noronha, Trindade & Martim Vaz Is.	− 2	10 00
East of 52°30' W (approx)	− 3	09 00
Amazonas, Matto Grosso	− 4	08 00
Acre Territory	− 5	07 00
British Honduras	− 5 1/2	06 30
British Isles	+ 1	13 00
British Phoenix Is	− 11	01 00
Brunei	+ 8	20 00
Bulgaria	+ 2	14 00
Burma	+ 6 1/2	18 30
Burundi	+ 2	14 00
Cambodia	+ 7	19 00
Cameroun	+ 1	13 00
Canada, Belle Isle, Labrador, Newfoundland	− 3 1/2	08 30
Anticosti Is, Cape Breton Is, Magdalen Is, New Brunswick, Nova Scotia, Prince Edward Is, Quebec (E of 68°W), Sable Is.	− 4	08 00
Melville Peninsula (east), Ontario (E of 90°W), Quebec (W of 68°W), Southampton Is	− 5	07 00
Manitoba, Ontario (W of 90°W), Melville Peninsula (west), N.W. Territories (east)	− 6	06 00
Alberta, Saskatchewan, N.W. Territories (middle)	− 7	05 00
British Columbia, N.W. Territories (west)	− 8	04 00
Yukon	− 9	03 00
Arctic Is*		
Canal Zone	− 5	07 00
Canary Is	0	12 00
Cape Verde Is	− 2	10 00
Caroline Is, Western	+ 9	21 00
Eastern	+ 11	23 00
Cayman Is	− 5	07 00
Celebes Is.(Indonesia)	+ 8	20 00
Central African Republic	+ 1	13 00
Ceylon Is	+ 5 1/2	17 30
Chad	+ 1	13 00
Chagos Is	+ 5	17 00
Chatham Is	+ 12 3/4	00 45
Chile, Juan Fernandez Is	− 4	08 00
China, Western part	+ 5	17 00
Mid-western part	+ 6	18 00
Mid-eastern part	+ 7	19 00
Eastern part	+ 8	20 00
Christmas Is	+ 7	19 00
Clipperton Is	− 7	05 00
Cocos-Keeling Is	+ 6 1/2	18 30
Colombia, San Andres & Providencia Is	− 5	07 00
Comora Is	+ 3	15 00
Congo, Republic of (Brazzaville)	+ 1	13 00
Congo, Republic of the (Leopoldville), western part	+ 1	13 00
eastern part	+ 2	14 00
Cook Is	− 10 1/2	01 30
Costa Rica, Cocos Is	− 6	06 00
Crozet Is	+ 3	15 00
Cuba	− 5	07 00
Cyprus Is	+ 2	14 00
Czechoslovakia	+ 1	13 00
Dahomey	+ 1	13 00
Das Is	+ 4	16 00
Denmark	+ 1	13 00
Dominican Republic	− 5	07 00
Easter Is	− 7	05 00
Ecuador, Galapagos Is	− 5	07 00
Egypt	+ 2	14 00
El Salvador	− 6	06 00
Ethiopia	+ 3	15 00
Faeroe Is	0	12 00
Falkland Is	− 4	08 00
Fanning & Line Is	− 10	02 00
Fiji Is	+ 12	24 00
Finland, Aland Is	+ 2	14 00
France, Corsica	+ 1	13 00
French Polynesia	− 10	02 00
Gabon	+ 1	13 00
Gambia	0	12 00
Germany	+ 1	13 00
Ghana	0	12 00
Gibraltar	+ 1	13 00
Gilbert & Ellice Is	+ 12	24 00
Goa	+ 5 1/2	17 30
Greece, Crete, Dodecanese Is	+ 2	14 00
Greenland, western	− 4	08 00
Guantanamo Bay	− 5	07 00
Guatemala	− 6	06 00
Guiana, British	− 3 3/4	08 15
Guiana, French	− 4	08 00
Guinea, Portuguese	− 1	11 00
Guinea, Republic of	0	12 00
Haiti	− 5	07 00
Hawaii	− 10	02 00
Heard Is	+ 5	17 00
Honduras	− 6	06 00
Hong Kong	+ 8	20 00
Hungary	+ 1	13 00
Iceland	− 1	11 00
Ifni	0	12 00
India, Andaman & Nicobar, Laccadive Is	+ 5 1/2	17 30
Iran	+ 3 1/2	15 30
Iraq	+ 3	15 00
Ireland	+ 1	13 00
Israel	+ 2	14 00
Italy, Sardinia, Sicily	+ 1	13 00
Ivory Coast	0	12 00
Jamaica	− 5	07 00
Jan Mayen Is	− 1	11 00
Japan	+ 9	21 00
Jarvis & Palmyra Is	− 10	02 00
Java (Indonesia)	+ 7 1/2	19 30
Johnston Is	− 11	01 00
Jordan	+ 2	14 00
Kenya	+ 3	15 00
Korea	+ 9	21 00
Kuwait	+ 3	15 00
Laos	+ 7	19 00
Lebanon	+ 2	14 00
Liberia	− 3/4	11 15
Libya	+ 2	14 00
Liechtenstein	+ 1	13 00
Luxembourg	+ 1	13 00
Macao	+ 8	20 00
Macquarie Is	+ 11	23 00
Madeira Is	− 1	11 00
Malagasy Republic (Madagascar Is.)	+ 3	15 00
Malawi (Nyasaland)	+ 2	14 00
Malaysia	+ 7 1/2	19 30
Maldive Is	+ 5	17 00
Mali Republic	0	12 00
Malta Is	+ 1	13 00
Manchuria	+ 8	20 00
Manihiki Is	− 11	01 00
Marshall Is, Wake Is	+ 12	24 00
Mauritania	0	12 00
Mauritius & Rodriquez Is	+ 4	16 00
Mexico, east of states of Sonora, Sinaloa & Nayarit	− 6	06 00
Sonora, Sinaloa, Nayarit, Baja California (south of 28°N), Revillagigedo Is.	− 7	05 00
Baja California (north of 28°N)	− 8	04 00
Midway Is	− 11	01 00
Molucca Is.(Indonesia)	+ 8 1/2	20 30
Monaco	+ 1	13 00
Mongolia*		
Morocco	0	12 00
Mozambique	+ 2	14 00
Muscat & Oman	+ 4	16 00
Nauru Is, Norfolk Is	+ 11 1/2	23 30
Navassa Is	− 5	07 00
Nepal	+ 5 1/2	17 30
Netherlands	+ 1	13 00
Netherlands Antilles	− 4 1/2	07 30
New Caledonia Is, New Hebrides Is	+ 11	23 00
New Guinea N.E., Papua	+ 10	22 00
New Zealand, Kermadec Is	+ 12	24 00
Nicaragua	− 6	06 00
Niger	+ 1	13 00
Nigeria	+ 1	13 00
Niue Is	− 11	01 00
Norway, Svalbard Is	+ 1	13 00
Pakistan, West	+ 5	17 00
East	+ 6	18 00
Panama	− 5	07 00
Paraguay	− 4	08 00
Peru	− 5	07 00
Philippines	+ 8	20 00
Pitcairn Is	− 10	02 00
Poland	+ 1	13 00
Portugal	+ 1	13 00
Prince Edward & Marion Is	+ 3	15 00
Puerto Rico	− 4	08 00
Qatar	+ 4	16 00
Reunion Is	+ 4	16 00
Rhodesia, Southern	+ 2	14 00
Rio Muni	+ 1	13 00
Romania	+ 2	14 00
Rwanda	+ 2	14 00
Ryukyu Is. (Okinawa)	+ 9	21 00
Sabah, Sarawak (Malaysia)	+ 8	20 00
St. Pierre & Miquelon Is	− 3	09 00
Samoa Is	− 11	01 00
San Marino	+ 1	13 00
Sao Tome & Principe Is	0	12 00
Sarawak	+ 8	20 00
Saudi Arabia**		
Senegal	0	12 00
Serrana Bank & Roncador Cay	− 5	07 00
Seychelles Is	+ 4	16 00
Sierra Leone	0	12 00
Sikkim	+ 5 1/2	17 30
Singapore	+ 7 1/2	19 30
Solomon Is	+ 11	23 00
Somali Republic	+ 3	15 00
Somaliland, French	+ 3	15 00
South Africa	+ 2	14 00
South Georgia Is, South Sandwich Is	− 2	10 00
South Shetland Is, South Orkney Is*		
South-West Africa	+ 2	14 00
Spain, Balearic Is, Ceuta y Melilla	+ 1	13 00
Spanish Sahara (Rio de Oro)	0	12 00
Sudan	+ 2	14 00
Sumatra Is. (Indonesia), west	+ 6 1/2	18 30
east	+ 7	19 00
Surinam (Netherlands Guiana)	− 3 1/2	08 30
Swan Is	− 6	06 00
Swaziland	+ 2	14 00
Sweden	+ 1	13 00
Switzerland	+ 1	13 00
Syria	+ 2	14 00
Taiwan (Formosa)	+ 8	20 00
Tanganyika	+ 3	15 00
Thailand	+ 7	19 00
Tibet	+ 6	18 00
Timor Is	+ 8	20 00
Togo	0	12 00
Tokelau Is	− 11	01 00
Tonga (Friendly) Is	+ 13	01 00
Tristan de Cunha & Gough Is	0	12 00
Tromelin Is	+ 4	16 00
Trucial Oman	+ 4	16 00
Tunisia	+ 1	13 00
Turkey	+ 2	14 00
Uganda	+ 3	15 00
United States of America, Eastern time	− 5	07 00
Central time	− 6	06 00
Mountain time	− 7	05 00
Pacific time	− 8	04 00
Upper Volta	0	12 00
Uruguay	− 3	09 00
U.S.S.R., Estonia, Latvia, Lithuania, Karelo-Finnish, White Russia, Ukraine, Moldavia, European Russia	+ 3	15 00
Georgia, Armenia, Azerbaidzhan	+ 4	16 00
Kazakh, Uzbek, Turkmen, Tadzhik	+ 5	17 00
Kirghiz, West Siberian region	+ 6	18 00
Approx. 82°30' to 97°30' W.	+ 7	19 00
Buryat, East Siberian region	+ 8	20 00
Approx. 112°30' to 127°30' W.	+ 9	21 00
Kuril Is, Sakhalin Is	+ 10	22 00
Approx. 142°30' to 157°30' W.	+ 11	23 00
Approx. 157°30' to 172°30' W.	+ 12	24 00
Approx. 172°30' W. to coast	+ 13	01 00
Venezuela	− 4	08 00
Vietnam	+ 8	20 00
Wallis & Futuna Is	+ 12	24 00
West Irian (Netherlands New Guinea)	+ 9 1/2	21 30
West Indies, Barbados, Trinidad, Tobago, Guadeloupe, Martinique, Leeward Is, Windward Is	− 4	08 00
Yemen**		
Yugoslavia	+ 1	13 00
Zambia (Northern Rhodesia)	+ 2	14 00
Zanzibar Is	+ 3	15 00

* No definite standard time used.

** "Arabic Time", i.e.daily all watches are set to midnight at sundown.

RADIO AMATEURS PREFIX



INTERNATIONAL RADIO AMATEUR PREFIXES

The following prefixes are listed in alphabetical order for convenience in locating the country when DX calls are heard.

A2C	Botswana
AC3	Sikkim
AC4	Tibet
A51	Bhutan
AP	Pakistan
AP	Bangladesh
BV	Taiwan
BY	China
CE	Chile
CE9AA-AM	Chilean Antarctica, Tierra de O'Higgins, Palmer Peninsula, Graham Land
CE9AN-AZ	South Shetland Is.
CEØA	Easter Is.
CEØX	San Felix Is.
CEØZ	Juan Fernandez Is.
CM,CO	Cuba
CN	Morocco
CP	Bolivia
CR3	Portuguese Guinea
CR4	Cape Verde Is.
CR5	Sao Tome & Principe Is.
CR6	Angola
CR7	Mozambique
CR8	Timor Is. (Portuguese)
CR9	Macao
CT1	Portugal
CT2	Azores Is.
CT3	Madeira Is.
CX	Uruguay
C21	Republic of Nauru
C31	Andorra
DA,B,C,F,J,K,L	West German Federal Rep.
DM	East German Democratic Rep.
DU	Philippines
EA	Spain
EA6	Balearic Is.
EA8	Canary Is.
EA9	Spanish Sahara, Ceuta y Melilla
EI	Ireland
EL,5L	Liberia
EP	Iran
ET3	Ethiopia
F	France
FB8W	Crozet Is.
FB8X	Kerguelen Is.
FB8Y	Antarctica
FB8Z	Amsterdam & St. Paul Is.
FC	Corsica
FG7	Guadeloupe
FH8	Comoro Is.
FK8	New Caledonia
FL8	French Somaliland (Afars and Issas)
FM7	Martinique
FO8	French Polynesia, Clipperton Is.
FP8	St. Pierre & Miquelon Is.
FR7	Glorioso, Juan de Nova, Reunion, Tromelin Is.
FS7	Saint Martin
FU8	New Hebrides
FW8	Wallis & Futuna Is.
FY7	French Guiana
G	England
GC	Channel Is.
GD	Isle of Man
GI	Northern Ireland
GM	Scotland
GW	Wales
HA,HG	Hungary
HB	Switzerland
HBØ	Liechtenstein
HC	Ecuador
HC8	Galapagos Is.
HH	Haiti
HI	Dominican Republic
HK	Colombia
HKØ	Bajo Nuevo, Malpelo, San Andres & Providencia Is.
HM,HL9	Korea
HP	Panama
HR	Honduras
HS	Thailand
HT	Nicaragua
HV	Vatican City
HZ,7Z	Saudi Arabia
I,IRØ	Italy
IA	Pianosa Is.
IC	Capri & Ischia Is.
IG9	Lampedusa Is.
IH	Pantelleria Is.
IS	Sardinia
IT	Sicily
JA,JH,JR	Japan
JD1	Ogasawara, Minami-Tori-Shima Is.
JR6	Okinawa (Ryukyu Is.)
JT1	Mongolia
JW	Svalbard Is.
JX	Jan Mayen Is.
JY	Jordan
K	United States of America
KA	U.S. Personnel in Japan
KB6	Baker, Canton, Enderbury, Howland & Phoenix Is.
KC4	Navassa Is.
KC4AA,KC4US	Antarctica
KC6	Caroline Is.
KG4	Guantanamo Bay, Cuba
KG6	Guam
KG6R,S,T	Mariana Is.
KH6	Hawaii & Kure Is.
KJ6	Johnston Is.
KL7	Alaska
KM6	Midway Is.
KP4	Puerto Rico
KP6	Jarvis & Palmyra Is.
KS4	Swan Is.
KS4B	Serrana Bank & Roncador Cay
KS6	American Samoa
KV4	Virgin Is.
KW6	Wake Is.
KX6	Marshall Is.
KZ5	Canal Zone
LA,LF,LG,LJ	Norway
LU	Argentina
LX	Luxembourg
LZ	Bulgaria
M1	San Marino
MP4B	Bahrain Is.
MP4D	Das Is.
MP4M	Oman
MP4Q	Qatar
MP4T	Trucial States
OA	Peru
OD5	Lebanon
OE	Austria
OH	Finland
OHØ	Aland Is.
OJØ, OHØM	Market Reef
OK,OL	Czechoslovakia
ON	Belgium
OX	Greenland
OY	Faeroes Is.
OZ	Denmark
PA,PE,PI	Netherlands
PJ	Netherlands Antilles
PJ2,9	Curacao
PJ3,9	Aruba
PJ4,9	Bonaire
PJ5,8	St. Eustatius
PJ6,8	Saba Is.
PJ7,8	Sint Maarten
PY	Brazil
PYØ	Fernando de Noronha Is.
PYØ	St. Peter & St. Paul's Rocks
PYØ	Trindade & Martin Vaz Is.
PZ	Surinam
SK,SL,SM	Sweden
SP	Poland
ST	Sudan
SU	Egypt (United Arab Republic)
SV,SZØ	Crete, Greece
SV5	Dodecanese Is.
TA,TC	Turkey
TF	Iceland
TG	Guatemala
TI	Costa Rica
TI9	Cocos Is.
TJ	Cameroon
TL8	Central African Republic
TN8	Republic of Congo (Brazzaville)
TR8	Gabon
TT8	Chad
TU2	Ivory Coast
TY	Dahomey
TZ	Mali Republic
UA1,2,3,4,6	European Russian Soviet Federated Socialist Republic
UA9,Ø	Asiatic Russian S.F.S.R.
UB5	Ukrainian S.S.R.
UC2	White Russian S.S.R.
UD6	Azerbaidzhan S.S.R.
UF6	Georgian S.S.R.
UG6	Armenian S.S.R.
UH8	Turkmen S.S.R.
UI8	Uzbek S.S.R.
UJ8	Tadzhik S.S.R.
UL7	Kazakh S.S.R.
UM8	Kirghiz S.S.R.
UO5	Moldavian S.S.R.
UP2	Lithuanian S.S.R.
UQ2	Latvian S.S.R.
UR2	Estonian S.S.R.
VE	Canada
VK	Australia
VO1	Newfoundland
VO2	Labrador
VP1	Belize (British Honduras)
VP2	Leeward & Windward Is.
VP5	Turks & Caicos Is.
VP7	Bahama Is.
VP8	Falkland, S. Georgia, S. Orkney, S. Sandwich, S. Shetland Is., Graham Land
VP9	Bermuda Is.
VQ1	Zanzibar (Tanzania)
VQ9	Chagos & Seychelles Is.
VR1	Br. Phoenix, Ellice, Gilbert & Ocean Is.
VR2	Fiji
VR3	Line Is.
VR4	Solomon Is.
VR5	Tonga
VR6	Pitcairn Is.
VS5	Brunei
VS6	Hong Kong
VS9A,P,S	South Yemen
VS9K	Kamaran Is.
VS9M	Maldive Is.
VU2	India
VU2	Laccadive Is.
VU2	Andaman & Nicobar Is.
W	United States of America
XE,XF	Mexico
XE4	Revilla Gigedo Is.
XT2	Upper Volta
XU	Cambodia/Khmer Republic
XW8	Laos
XZ2	Burma
YA	Afghanistan
YB,YC,YD	Indonesia
YI	Iraq
YJ	New Hebrides
YK	Syria
YN	Nicaragua
YO	Romania
YS	El Salvador
YU,YT	Yugoslavia
YV	Venezuela
YVØ	Aves Is.
ZA	Albania
ZB2	Gibraltar
ZC4	Cyprus
ZD3	Gambia
ZD7	Saint Helena
ZD8	Ascension Is.
ZD9	Tristan da Cunha & Gough Is.
ZE	Rhodesia
ZF1,VP5	Cayman Is.
ZK1	Cook & Manihiki Is.
ZK2	Niue Is.
ZL,ZM	New Zealand & Auckland, Campbell, Chatham, Kermadec Is.
ZM7	Tokelau Is.
ZP	Paraguay
ZS1,2,4,5,6	South Africa
ZS2	Prince Edward & Marion Is.
ZS3	Southwest Africa (Namibia)
3A	Monaco
3B6	Agalega Is.
3B7	St. Brandon Is.
3B8	Mauritius Is.
3B9	Rodriguez Is.
3C	Equatorial Guinea
3D6	Swaziland
3V8	Tunisia
3W8	Vietnam
3Y	Bouvet Is.
4S7	Ceylon
4U	United Nations, Geneva, Turin
4W1	Yemen
4X4,4Z4	Israel
5A	Libya
5B4	Cyprus
5H1	Zanzibar, Tanzania
5H3	Tanganyika, Tanzania
5N2	Nigeria
5R8	Madagascar (Malagasy Republic)
5T5	Mauritania
5U7	Niger
5V	Togo
5W1	Western Samoa
5X5	Uganda
5Z4	Kenya
6O1,2,6	Somali Republic
6W8	Senegal
6Y5	Jamaica
7G1	Republic of Guinea
7O	South Yemen
7P8	Lesotho
7Q7	Malawi
7X	Algeria
7Z	Saudi Arabia
8P6	Barbados Is.
8Q6	Maldive Is.
8R	Guyana
8Z4	Saudi Arabia/Iraq Neutral Zone
9G1	Ghana
9H1	Malta
9I,9J	Zambia
9K2	Kuwait
9L1	Sierra Leone
9M2	West Malaysia
9M6,8	East Malaysia
9N1	Nepal
9Q5	Republic of Zaire
9U5	Burundi
9V1	Republic of Singapore
9X5	Rwanda
9Y4	Trinidad & Tobago Is.

MAP OF THE WORLD



PREFIXES-BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes Characters in ( ) designate the continent and zone in which the country is located. Abbreviations are as follows: A—Asia, AF—Africa, E—Europe, NA—North America, O—Oceania, SA—South America.

Country	Zone	Prefix
Afghanistan	(A-21)	YA
Agalega Is.	(AF-39)	3B6
Aland Is.	(E-15)	OHØ
Alaska	(NA-1)	KL7
Albania	(E-15)	ZA
Algeria	(AF-33)	7X
Amsterdam & St. Paul Is.	(AF-39)	FB8Z
Andaman & Nicobar Is.	(A-26)	VU2
Andorra	(E-14)	C31
Angola	(AF-36)	CR6
Antarctica		CE9AA-AM, FB8Y, KC4, LA, LU-Z, UA1, VKØ, VP8, ZL5, 3Y, 8J
Argentina	(SA-13)	LU
Ascension Is.	(AF-36)	ZD8
Auckland & Campbell Is.	(O-32)	ZL
Australia	(O-29 & 30)	VK
Austria	(E-15)	OE
Aves Is.	(SA-8)	YVØ
Azores Is.	(E-14)	CT2
Bahama Is.	(NA-8)	VP7
Bahrain Is.	(A-21)	MP4B
Bajo Nuevo Is.	(NA-7)	HKØ
Baker Is.	(O-31)	KB6
Balearic Is.	(E-14)	EA6
Barbados Is.	(NA-8)	8P6
Belgium	(E-14)	ON
Belize (British Honduras)	(NA-7)	VP1
Bangladesh	(A-22)	AP
Bermuda Is.	(NA-5)	VP9
Bhutan	(A-22)	A51
Bolivia	(SA-10)	CP
Botswana	(AF-38)	A2C
Bouvet Is.	(AF-38)	3Y
Brazil	(SA-11)	PY
British Phoenix Is.	(O-31)	VR1
Brunei	(O-28)	VS5
Bulgaria	(E-20)	LZ
Burma	(A-26)	XZ2
Burundi	(AF-36)	9U5
Cambodia/Khmer Rep.	(A-26)	XU
Cameroon	(AF-36)	TJ
Canada	(NA-1 to 5)	VE
Canal Zone	(NA-7)	KZ5
Canary Is.	(AF-33)	EA8
Canton Is.	(O-31)	KB6
Cape Verde Is.	(AF-35)	CR4
Capri Is.	(E-15)	IC
Caroline Is.	(O-27)	KC6
Cayman Is.	(NA-8)	ZF1
Central African Republic	(AF-36)	TL8
Ceuta y Melilla, Spanish	(A-33)	EA9
Ceylon	(A-22)	4S7
Chad Republic	(AF-36)	TT8
Chagos Is.	(AF-39)	VQ9
Channel Is.	(E-14)	GC
Chatham Is.	(O-32)	ZL
Chile	(SA-12)	CE
China	(A-23 & 24)	BY
Christmas Is.	(O-29)	VK9X
Clipperton Is.	(NA-7)	FO8
Cocos Is.	(NA-7)	TI9
Cocos (Keeling) Is.	(O-29)	VK9Y
Colombia	(SA-9)	HK
Comoro Is.	(AF-39)	FH8, FB8
Congo, Republic of	(AF-36)	TN8
Cook Is.	(O-32)	ZK1
Corsica	(E-15)	FC
Costa Rica	(NA-7)	TI
Crete, Greece	(E-20)	SV, SZØ
Crozet Is.	(AF-39)	FB8W
Cuba	(NA-8)	CM, CO
Cyprus	(A-20)	ZC4, 5B4
Czechoslovakia	(E-15)	OK, OL
Dahomey	(AF-35)	TY
Das Is.	(A-21)	MP4D
Denmark	(E-14)	OZ
Dodecanese Is.	(E-20)	SV5
Dominican Republic	(NA-8)	HI
Easter Is.	(SA-12)	CEØA
Ecuador	(SA-10)	HC
Egypt (United Arab Rep.)	(AF-34)	SU
El Salvador	(NA-7)	YS
Enderbury Is.	(O-31)	KB6
England	(E-14)	G
Ethiopia	(AF-37)	ET3
Faeroes Is.	(E-14)	OY
Falkland Is.	(SA-13)	VP8
Fernando de Noronha	(SA-11)	PYØ
Fiji	(O-32)	VR2
Finland	(E-15)	OH
France	(E-14)	F
French Polynesia	(O-32)	FO8
Gabon Republic	(AF-36)	TR8
Galapagos Is.	(SA-10)	HC8
Gambia	(AF-35)	ZD3
German Federal Rep. West	(E-14)	DA, B, C, F, J, K, L
German Dem. Rep. East	(E-14)	DM
Ghana	(AF-35)	9G1
Gibraltar	(E-14)	ZB2
Gilbert, Ellice & Ocean Is.	(O-31)	VR1
Glorioso Is.	(AF-39)	FR7
Graham Land	(SA-13)	VP8, LU-Z
Greece	(E-20)	SV, SZØ
Greenland	(NA-40)	OX
Guadeloupe	(NA-8)	FG7
Guam Is.	(O-27)	KG6
Guantanamo Bay	(NA-8)	KG4
Guatemala	(NA-7)	TG
Guiana, French	(SA-9)	FY7
Guinea, Equatorial	(AF-36)	3C
Guinea, Portuguese	(AF-35)	CR3
Guinea, Republic of	(AF-35)	3X, 7G1
Guyana	(SA-9)	8R
Haiti	(NA-8)	HH
Hawaii	(O-31)	KH6
Heard Is.	(O-39)	VKØ
Honduras	(NA-7)	HR
Hong Kong	(A-24)	VS6
Howland Is.	(O-31)	KB6
Hungary	(E-15)	HA, HG
Iceland	(E-40)	TF
India	(A-22)	VU2
Indonesia	(O-28)	YB, YC, YD
Iran	(A-21)	EP
Iraq	(A-21)	YI
Ireland	(E-14)	EI
Isle of Man	(E-14)	GD
Israel	(A-20)	4X4, 4Z4
Italy	(E-15)	I
Ivory Coast	(AF-35)	TU2
Jamaica	(NA-8)	6Y5
Jan Mayen Is.	(E-40)	JX
Japan	(A-25)	JA, JH, JR
Jarvis Is.	(O-31)	KP6
Johnston Is.	(O-31)	KJ6
Jordan	(A-20)	JY
Juan de Nova Is.	(AF-39)	FR7
Juan Fernandez Is.	(SA-12)	CEØZ
Kamaran Is.	(A-21)	VS9K
Kenya	(AF-37)	5Z4
Kerguelen Is.	(AF-39)	FB8X
Kermadec Is.	(O-32)	ZL
Korea	(A-25)	HM, HL9
Kure Is.	(O-31)	KH6
Kuwait	(A-21)	9K2
Labrador	(NA-2)	VO2
Laccadive Is.	(A-22)	VU2
Laos	(A-26)	XW8
Lebanon	(A-20)	OD5
Leeward Is.		
Anguilla	(NA-8)	VP2E
Antigua, Barbuda	(NA-8)	VP2A
British Virgin Is.	(NA-8)	VP2V
Montserrat	(NA-8)	VP2M
St. Kitts, Nevis	(NA-8)	VP2K
Lesotho	(AF-38)	7P8
Liberia	(AF-35)	EL, 5L
Libya	(AF-34)	5A
Liechtenstein	(E-14)	HBØ, HE
Line Is.	(O-31)	VR3
Lord Howe Is.	(O-30)	VK2
Luxembourg	(E-14)	LX
Macao	(A-24)	CR9
Macquarie Is.	(O-30)	VKØ
Madeira Is.	(AF-33)	CT3
Malagasy Republic	(AF-39)	5R8
Malawi	(AF-37)	7Q7
Malaysia, East	(A-28)	9M6, 8
Malaysia, West	(A-28)	9M2, 4
Maldive Is.	(A-22)	8Q6
Mali Republic	(AF-35)	TZ
Malpelo Is.	(SA-9)	HKØ
Malta	(E-15)	9H1
Manihiki Is.	(O-31)	ZK1
Mariana Is. (Saipan)	(O-27)	KG6R, S, T
Market Reef	(E-15)	OJØ, OHØM
Marshall Is.	(O-31)	KX6
Martinique	(NA-8)	FM7
Mauritania	(AF-35)	5T5
Mauritius Is.	(AF-39)	3B8
Mexico	(NA-6)	XE, XF
Midway Is.	(O-31)	KM6
Minami-Tori-Shima Is.	(A-27)	JD1
Monaco	(E-14)	3A
Mongolia	(A-23)	JT1
Morocco	(AF-33)	CN2, 8, 9
Mozambique	(AF-37)	CR7
Nauru, Republic of	(O-31)	C21
Navassa Is.	(NA-8)	KC4
Nepal	(A-22)	9N1
Netherlands	(E-14)	PA, PE, PI
Netherlands Antilles	(NA-8 & SA-9)	PJ
New Caledonia	(O-32)	FK8
Newfoundland	(NA-5)	VO1
New Guinea Territory	(O-28)	VK9AA-MZ
New Hebrides	(O-32)	FU8, YJ
New Zealand	(O-32)	ZL
Nicaragua	(NA-7)	YN, HT
Niger	(AF-35)	5U7
Nigeria	(AF-35)	5N2
Niue Is.	(O-32)	ZK2
Norfolk Is.	(O-32)	VK9N
Northern Ireland	(E-14)	GI
Norway	(E-14)	LA, LF, LG, LJ
Ogasawara Is. (Bonin Is.)	(A-27)	JD
Okinawa (Ryukyu Is.)	(A-25)	JR6
Oman	(A-21)	MP4M
Pakistan	(A-21)	AP
Palmyra Is.	(O-31)	KP6
Panama	(NA-7)	HP
Pantelleria Is.	(E-15)	IH
Papua Territory	(O-28)	VK9AA-MZ
Paraguay	(SA-11)	ZP
Peru	(SA-10)	OA
Philippines	(O-27)	DU
Phoenix Is.	(O-31)	KB6
Pianosa Is.	(E-14)	IA
Pitcairn Is.	(O-32)	VR6
Poland	(E-15)	SP
Portugal	(E-14)	CT1
Prince Edward & Marion Is.	(AF-38)	ZS2
Principe & Sao Tome Is.	(A-36)	CR5
Puerto Rico	(NA-8)	KP4
Qatar	(A-21)	MP4Q
Reunion Is.	(AF-39)	FR7
Revilla Gigedo Is.	(NA-6)	XE4
Rhodesia	(AF-38)	ZE
Rodriguez Is.	(AF-39)	3B9
Romania	(E-20)	YO
Rwanda	(AF-36)	9X5
Ryukyu Is. (Okinawa)	(A-25)	JR6
Sabah	(O-28)	9M6
St. Brandon Is.	(AF-39)	3B7
Saint Helena Is.	(AF-36)	ZD7
Saint Martin Is.	(NA-8)	FS7
St. Peter & St. Paul's Rocks	(SA-11)	PYØ
Saint Pierre & Miquelon Is.	(NA-5)	FP8
Samoa, American	(O-32)	KS6
Samoa, Western	(O-32)	5W1
San Andres & Providencia	(NA-7)	HKØ
San Felix Is.	(SA-12)	CEØX
San Marino	(E-15)	M1
Sao Tome & Principe Is.	(A-36)	CR5
Sarawak	(O-28)	9M8
Sardinia	(E-15)	IS
Saudi Arabia	(A-21)	HZ, 7Z
Saudi Arabia/Iraq Neutral Zone	(A-21)	8Z4
Scotland	(E-14)	GM
Senegal Republic	(AF-35)	6W8
Serrana Bk & Roncador Cay	(NA-7)	KS4B, HKØ
Seychelles Is.	(AF-39)	VQ9
Sicily	(E-15)	IT
Sierra Leone	(AF-35)	9L1
Sikkim	(A-22)	AC3
Singapore, Rep. of	(A-28)	9V1
Solomon Is.	(O-28)	VR4
Somali Republic	(AF-37)	6O1, 2, 6
Somaliland, French	(AF-37)	FL8
South Africa	(AF-38)	ZS1, 2, 4-6
South Georgia Is.	(SA-13)	VP8
South Orkney Is.	(SA-13)	VP8
South Sandwich Is.	(SA-13)	VP8
S. Shetland Is.	(SA-13)	CE9AN-AZ, VP8
Southwest Africa	(AF-38)	ZS3
South Yemen	(A-21)	VS9A, P, S, 7O
Soviet Union:		
European Russian Soviet Federated Socialist Republic	(E-16)	UA1, 2, 3, 4, 6
Asiatic Russian S.F.S.R.	(A-18, 19)	UA9, Ø
Armenian S.S.R.	(A-21)	UG6
Azerbaidzhan S.S.R.	(A-21)	UD6
Estonian S.S.R.	(E-15)	UR2
Franz Josef Land	(NA-40)	UA1
Georgian S.S.R.	(A-21)	UF6
Kaliningradsk	(E-15)	UA2
Kazakh S.S.R.	(A-17)	UL7
Kirghiz S.S.R.	(A-17)	UM8
Latvian S.S.R.	(E-15)	UQ2
Lithuanian S.S.R.	(E-15)	UP2
Moldavian S.S.R.	(E-16)	UO5
Tadzhik S.S.R.	(A-17)	UJ8
Turkmen S.S.R.	(A-17)	UH8
Ukrainian S.S.R.	(E-16)	UB5
Uzbek S.S.R.	(A-17)	UI8
White Russian S.S.R.	(E-16)	UC2
Spain	(E-14)	EA
Spanish Sahara (Rio de Oro)	(A-33)	EA9
Sudan	(AF-34)	ST
Surinam	(SA-9)	PZ
Svalbard Is.	(E-40)	JW
Swan Is.	(NA-7)	KS4
Swaziland	(AF-38)	3D6
Sweden	(E-14)	SK, SL, SM
Switzerland	(E-14)	HB
Syria	(A-20)	YK
Taiwan (Formosa)	(A-24)	BV
Tanganyika (Tanzania)	(AF-37)	5H3
Tasmania	(O-30)	VK7
Thailand	(A-26)	HS
Tibet	(A-23)	AC4
Timor Is. (Portuguese)	(O-28)	CR8
Togo	(AF-35)	5V
Tokelau Is.	(O-31)	ZM7
Tonga	(O-32)	VR5
Trindade & Martim Vaz Is.	(SA-11)	PYØ
Trinidad & Tobago Is.	(SA-9)	9Y4
Tristan de Cunha & Gough	(AF-38)	ZD9
Tromelin Is.	(AF-39)	FR7
Trucial States	(A-21)	MP4T
Tunisia	(AF-33)	3V8
Turkey	(A-20)	TA, TC
Turks & Caicos Is.	(NA-8)	VP5
Uganda	(AF-37)	5X5
United Nations, Geneva	(E-14)	4U
United States of America	(NA-3, 4, 5)	W, K
Upper Volta	(AF-35)	XT2
Uruguay	(SA-13)	CX
Vatican City	(E-15)	HV
Venezuela	(SA-9)	YV
Vietnam	(A-26)	3W8
Virgin Is.	(NA-8)	KV4
Wake Is.	(O-31)	KW6
Wales	(E-14)	GW
Wallis & Futuna Is.	(O-32)	FW8
Willis Is.	(O-30)	VK4
Windward Is.		
Dominica	(NA-8)	VP2D
Grenada & Dependencies	(NA-8)	VP2G
St. Lucia	(NA-8)	VP2L
St. Vincent & Dependencies	(NA-8)	VP2S
Yemen	(A-21)	4W1, 3
Yugoslavia	(E-15)	YU, YT
Zaire, Republic of	(AF-36)	9Q5
Zambia	(AF-36)	9I, 9J
Zanzibar (Tanzania)	(AF-37)	5H1, VQ1

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INTERNATIONAL "Q" SIGNALS

Abbreviation	Question	Answer or Advice
QRA	What is the name of your station?	The name of my stations is . . .
QRB	How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres)
QRD	Where are you bound and where are you from?	I am bound for . . . from . . .
QRG	Will you tell me my exact frequency or that of . . .)?	Your exact frequency (or that of . . . is . . . kc/s (or Mc/s).
QRH	Does my frequency vary?	Your frequency varies.
QRI	How is the tone of my transmission?	The tone of your transmission is . . . (1. Good; 2. Variable; 3. Bad).
QRK	What is the readability of my signals (or those of . . .)?	The readability of your signals (or those of . . .) is . . . (1. Unreadable; 2. Readable now and then; 3. Readable, but with difficulty; 4. Readable; 5. Perfectly readable).
QRL	Are you busy?	I am busy (or I am busy with . . .). Please do not interfere.
QRM	Are you being interferred with?	I am being interferred with.
QRN	Are you troubled by static?	I am troubled by static.
QRO	Shall I increase power?	Increase power.
QRP	Shall I decrease power?	Decrease power.
QRQ	Shall I send faster?	Send faster (. . . words per minute).
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.
QRS	Shall I send more slowly?	Send more slowly (. . . words per minute).
QRT	Shall I stop sending?	Stop sending.
QRU	Have you anything for me?	I have nothing for you.
QRV	Are you ready?	I am ready.
QRW	Shall I inform . . . that you are calling him on . . . kc/s (or Mc/s).	Please inform . . . that I am calling him on . . . kc/s (or Mc/s).
QRX	When will you call me again?	I will call you again at . . . hours [on . . . kc/s (or Mc/s)].
QRY	What is my turn?	Your turn is Number . . . (*Relates to communication.*)
QRZ	Who is calling me?	You are being called by . . . [on . . . kc/s or Mc/s)].
QSA	What is the strength of my signals (or those of . . .)?	The strength of your signals (or those of . . .) is . . . (1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good).
QSB	Are my signals fading?	Your signals are fading.
QSD	Is my keying defective?	Your keying is defective.
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.
QSJ	What is the charge to be collected per word to . . . including your internal telegraph charge?	The charge to be collected per word to . . . including my internal telegraph charge is . . . francs.
QSK	Can you hear me between your signals?	I can hear you between my signals.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram which I sent you, or some previous telegram?	Repeat the last telegram which you sent me [or *telegram(s) number(s)* . . .].
QSN	Did you hear me [or . . . (call sign)] on . . . kc/s (or Mc/s)?	I did hear you [or . . . (call sign) on . . . kc/s (or Mc/s).
QSO	Can you communicate with . . . direct or by relay?	I can communicate with . . . direct (or by relay through . . .).
QSP	Will you relay to . . . free of charge?	I will relay to . . . free of charge.
QSQ	Have you a doctor on board [or is . . . (name of person) on board]?	I have a doctor on board [or . . . name of person) is on board].
QSU	Shall I send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .)?	Send or reply on this frequency [or on . . . kc/s (or Mc/s] (with emissions of closs . . .).
QSV	Shall I send a series of V's on this frequency [or . . . kc/s (or Mc/s)]?	Send a series of V's on this frequency [or . . . kc/s (or Mc/s)].
QSW	Will you send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class)?	I am going to send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .).
QSX	Will you listen to . . . [*call sign(s)*] on . . . kc/s (or Mc/s)	I am listening to . . . [*call sign(s)*] on . . . kc/s (or Mc/s).
QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency [or on . . . kc/s (or Mc/s)].
QSZ	Shall I send each word or group more than once?	Send each word or group twice (or . . . times).
QTA	Shall I cancel telegram number . . . as if it had not been sent?	Cancel telegram number . . . as if it had not been sent.
QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QTC	How many telegrams have you to send?	I have . . . telegrams for you (or for . . .).
QTE	What is my TRUE bearing from you? or What is my TRUE bearing from . . . (*call sign*)? or What is the TRUE bearing of . . . (*call sign*) from . . . (*call sign*)?	Your TRUE bearing from me is . . . degrees (at . . . hours) or Your TRUE bearing from . . . (*call sign*) was . . . degrees (at . . . . . hours) or The TRUE bearing of . . . (*call sign*) from . . . (*call sign*) was . . . degrees at . . . hours).
QTG	Will you send two dashes of ten seconds each followed by your call sign (repeated . . . times) [on . . . kc/s (or Mc/s)]? or Will you request . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s)?	I am going to send two dashes of ten seconds each followed by my call sign (repeated . . . times) [on . . . kc/s (or Mc/)] or I have requested . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s).
QTH	What is your position in latitude and longitude (*or according to any other indication*)?	My position is . . . latitude . . . longitude (*or according to any other indication*).
QTI	What is your TRUE track?	My TRUE track is . . . degrees.
QTJ	What is your speed?	My speed is . . . knots (or kilometres per hour).
QTL	What is your TRUE heading?	My TRUE heading is . . . degrees.
QTN	At what time did you depart from . . . (*place*)?	I departed from . . . (*place*) at . . . hours.
QTO	Have you left dock (or port)? or Are you airborne?	I have left dock (or port) or I am airborne.
QTP	Are you going to enter dock (or port)? or Are you going to alight (or land)?	I am going to enter dock (or port) or I am going to alight (or land).
QTQ	Can you communicate with my station by means of the International Code of Signals?	I am going to communicate with your station by means of the International Code of Signals.
QTR	What is the correct time?	The correct time is . . . hours.
QTS	Will you send your call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s] so that your frequency may be measured?	I will send my call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that my frequency may be measured.
QTU	What are the hours during which your station is open?	My station is open from . . . to . . . hours.
QTV	Shall I stand guard for you on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours)?	Stand guard for me on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours).
QTX	Will you keep your station open for further communication with me until further notice (or until . . . hours)?	I will keep my station open for further communication with you until further notice (or until . . . hours).
QUA	Have you news of . . . (*call sign*)?	Here is news of . . . (*call sign*).
QUB	Can you give me, in the following order, information concerning: visibility, height of clouds, direction and velocity of ground wind at . . . (*place of observation*)?	Here is the information requested . . .
QUC	What is the number (*or other indication*) of the last message you received from me [or from (*call sign*]?	The number (*or other indication*) of the last message I received from you [or from . . . (*call sign*)] is . . .
QUD	Have you received the urgency signal sent by . . . (*call sign of mobile station*)?	I have received the urgency signal sent by . . . (*call sign of mobile station*) at . . . hours).
QUF	Have you received the distress signal sent by . . . (*call sign of mobile station*)?	I have received the distress signal sent by . . . (*call sign of mobile station*) at . . . hours.
QUG	Will you be forced to alight (or land)?	I am forced to alight (or land immediately. or I shall be forced to alight (or land) at . . . (*position or place*).
QUH	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is . . . (*units*).

CENSUS OF AMATEUR RADIO LICENSES* in the U.S.A.

by classes, within states and call areas

Call Area	State	Novice	Technician	Conditional	General	Advanced	Extra	Club	Military	State totals	YL's (Included in state totals)
#1	Conn.	375	693	642	1,625	986	289	80	7	4,697	171
	Maine	64	132	485	380	309	84	17	3	1,474	59
	Mass.	555	2,794	514	3,757	2,093	521	125	18	10,377	430
	N.H.	63	411	187	555	316	74	25	2	1,633	81
	R.I.	74	454	98	521	258	59	19	5	1,488	62
	Vermont	38	81	197	171	141	33	11	2	674	37
		1,169	4,565	2,123	7,009	4,103	1,060	277	37	20,343	840
#2	N.J.	897	3,054	325	4,483	2,726	681	157	5	12,328	339
	N.Y.	1,751	5,289	745	8,206	4,706	1,113	324	34	22,168	751
		2,648	8,343	1,070	12,689	7,432	1,794	481	39	34,496	1,090
#3	Del.	67	125	33	252	151	37	13	3	681	24
	D.C.	27	56	20	160	125	48	20	5	461	7
	Md.	416	808	243	1,925	1,388	370	68	27	5,245	159
	Pa.	1,000	3,375	695	5,420	2,872	675	217	26	14,280	497
		1,510	4,364	991	7,757	4,536	1,130	318	61	20,667	687
#4	Alabama	345	582	636	1,157	632	140	28	16	3,536	155
	Florida	817	1,869	1,699	3,812	2,886	583	110	18	11,794	524
	Georgia	229	585	751	1,315	787	188	45	10	3,910	113
	Ky.	253	450	440	716	486	104	32	6	2,487	87
	N.C.	332	607	825	1,374	938	187	47	10	4,320	148
	S.C.	174	187	798	460	352	98	20	13	2,102	79
	Tenn.	381	1,051	552	1,322	929	197	51	7	4,490	176
	Va.	376	836	723	1,931	1,376	386	61	29	5,718	142
		2,907	6,167	6,424	12,087	8,386	1,883	394	109	38,357	1,424
#5	Ark.	155	288	367	494	395	88	26	5	1,818	91
	La.	240	426	576	992	669	141	35	10	3,089	116
	Miss.	152	128	393	426	325	53	8	5	1,490	47
	N.M.	119	169	480	349	396	112	17	8	1,650	72
	Okla.	277	651	411	946	739	130	38	34	3,226	154
	Texas	1,026	2,525	2,651	4,460	3,347	673	161	47	14,890	782
		1,969	4,187	4,878	7,667	5,871	1,197	285	109	26,163	1,262
#6	Calif.	2,725	7,991	3,331	13,464	9,987	1,948	517	85	40,048	1,575
#7	Arizona	239	657	571	1,050	909	190	32	19	3,667	180
	Idaho	134	72	408	169	219	40	12	0	1,054	62
	Montana	75	45	541	130	180	50	21	3	1,045	60
	Nevada	62	116	403	182	188	33	15	5	1,004	68
	Oregon	453	520	751	1,375	990	183	52	7	4,331	220
	Utah	165	245	163	438	316	59	16	9	1,411	53
	Wash.	670	993	1,116	2,274	1,657	344	77	20	7,151	390
	Wyoming	63	38	216	96	85	24	12	3	537	29
		1,861	2,686	4,169	5,714	4,544	923	237	66	20,200	1,062
#8	Mich.	1,041	2,600	898	3,723	2,178	344	132	14	10,930	425
	Ohio	1,512	4,925	621	5,301	2,868	530	203	16	15,976	629
	W.Va.	160	332	165	600	301	77	20	3	1,658	53
		2,713	7,857	1,684	9,624	5,347	951	355	33	28,564	1,107
#9	Ill.	1,220	3,231	1,420	4,951	2,961	511	219	18	14,531	590
	Ind.	688	1,881	471	2,140	1,231	227	115	10	6,763	302
	Wisc.	526	771	761	1,566	1,042	197	70	16	4,949	139
		2,434	5,883	2,652	8,657	5,234	935	404	44	26,243	1,031
#10	Colo.	333	557	612	1,185	888	180	55	17	3,827	186
	Iowa	376	516	502	1,454	913	143	69	9	3,982	165
	Kansas	288	377	786	1,001	666	164	40	15	3,337	170
	Minn.	599	512	759	1,633	1,061	246	71	2	4,883	176
	Mo.	538	1,041	758	1,837	1,236	254	77	9	5,750	241
	Nebr.	216	287	428	648	453	61	30	2	2,125	96
	N.D.	61	15	414	63	101	23	10	2	689	40
	S.D.	73	47	230	222	184	36	14	2	808	53
		2,484	3,352	4,489	8,043	5,502	1,107	366	58	25,401	1,127
KH6	Hawaii	107	93	213	411	387	68	22	22	1,323	45
KL7	Alaska	80	82	190	326	243	67	8	49	1,045	69
Grand total, 50 states and D.C. only		22,607	55,570	32,214	93,448	61,572	13,063	3,664	712	282,850	11,319

* From the Winter 1972-73 Radio Amateur Callbook Magazine.

GREAT CIRCLE BEARINGS IN THE UNITED STATES

	ATLANTA, GA.	BIRMINGHAM, ALA.	BISMARCK, N. D.	BOSTON, MASS.	BUFFALO, N. Y.	CHARLESTON, W. VA.	CHEYENNE, WYO.	CHICAGO, ILL.	CLEVELAND, OHIO	COLUMBIA, S. C.	DALLAS, TEXAS	DENVER, COLORADO	DES MOINES, IOWA	DETROIT, MICH.	EL PASO, TEXAS	HELENA, MONTANA	HOUSTON, TEXAS	INDIANAPOLIS, IND.	JACKSONVILLE, FLA.	KANSAS CITY, MO.	LITTLE ROCK, ARK.	LOS ANGELES, CALIF.	LOUISVILLE, KY.	MIAMI, FLORIDA	MILWAUKEE, WIS.	MINNEAPOLIS, MINN.	NASHVILLE, TENN.	NEW ORLEANS, LA.	NEW YORK, N. Y.	NORFOLK, VA.	PHILADELPHIA, PA.	PHOENIX, ARIZONA	PITTSBURGH, PA.	ST. LOUIS, MO.	SALT LAKE CITY, UTAH	SAN FRANCISCO, CALIF.	SEATTLE, WASHINGTON	WASHINGTON, D. C.	WILMINGTON, N. C.
ATLANTA, GA.		264	322	47	24	25	301	343	15	86	269	297	320	7	271	310	251	347	145	306	281	281	347	154	345	331	321	234	48	64	48	278	27	318	296	289	308	48	84
BIRMINGHAM, ALA.	82		326	50	31	40	304	356	26	84	268	299	328	17	270	312	246	5	125	314	287	281	10	142	355	338	0	219	52	67	53	278	37	333	298	290	309	53	83
BISMARCK, N. D.	132	137		92	97	115	209	114	105	124	167	205	133	104	198	273	165	119	132	148	150	233	123	135	109	108	131	151	99	111	102	217	106	134	237	249	282	107	119
BOSTON, MASS.	236	241	291		277	247	278	273	267	226	254	275	275	274	262	293	246	263	220	268	253	273	256	207	278	286	249	237	235	219	233	268	258	262	280	280	295	236	217
BUFFALO, N. Y.	208	217	291	92		206	273	264	237	192	241	269	268	261	252	290	231	243	191	258	237	267	231	184	274	286	225	219	118	160	134	261	199	248	276	276	293	159	174
CHARLESTON, W. VA.	208	223	307	61	24		287	309	359	174	251	282	293	345	260	300	238	293	180	279	251	274	270	174	316	311	245	223	66	108	71	269	31	275	286	282	301	80	143
CHEYENNE, WYO.	108	112	26	76	76	91		81	81	103	140	187	83	79	189	319	143	90	113	101	119	241	95	119	76	62	104	128	81	92	83	219	84	98	268	262	303	87	100
CHICAGO, ILL.	161	175	302	82	78	125	272		93	144	221	266	268	80	242	293	210	151	155	245	208	262	157	156	350	308	173	190	91	116	97	254	101	212	274	272	295	106	131
CLEVELAND, OHIO	197	209	297	80	55	179	277	277		176	240	272	275	310	252	293	228	245	180	261	235	268	226	175	290	296	219	214	95	136	105	262	127	250	278	277	296	124	156
COLUMBIA, S. C.	268	267	317	41	10	354	299	329	356		270	295	311	350	271	308	256	326	189	300	279	282	320	174	331	323	297	246	39	53	37	279	7	305	295	290	307	33	85
DALLAS, TEXAS	81	82	349	57	49	61	325	36	50	80		319	15	45	266	325	157	47	97	15	61	280	55	112	32	11	65	115	60	71	61	277	55	40	308	291	315	63	80
DENVER, COLORADO	103	107	22	73	72	87	6	75	77	99	134		74	74	189	325	138	84	109	91	112	246	90	116	70	55	98	124	78	88	80	224	80	91	283	267	308	83	96
DES MOINES, IOWA	134	144	318	80	78	105	271	84	87	123	197	262		81	231	297	187	105	135	197	171	257	116	141	69	5	133	165	87	104	91	247	92	137	273	270	296	97	115
DETROIT, MICH.	188	200	295	86	79	164	273	263	129	168	233	268	268		248	291	222	224	174	254	227	265	208	171	282	292	206	207	100	133	109	258	128	238	275	274	294	124	151
EL PASO, TEXAS	77	78	14	58	54	64	8	50	56	76	79	8	42	53		345	98	57	86	48	71	285	62	97	46	33	68	92	61	69	62	290	59	57	335	298	327	64	75
HELENA, MONTANA	112	116	85	84	88	100	133	97	93	108	134	141	105	92	162		136	101	115	115	122	203	105	119	94	91	111	127	89	98	92	180	94	109	179	224	283	95	104
HOUSTON, TEXAS	64	60	348	50	40	49	329	25	39	67	338	325	6	34	285	327		34	84	3	26	288	40	103	22	5	46	86	52	60	53	289	45	24	314	297	319	5	68
INDIANAPOLIS, IND.	166	185	308	72	58	110	281	332	62	143	234	276	290	41	250	298	220		157	267	226	267	168	158	338	316	188	199	80	107	85	261	80	251	281	277	298	94	127
JACKSONVILLE, FLA.	327	309	324	33	9	1	308	339	0	8	286	304	323	355	282	314	273	340		314	300	288	338	163	341	332	326	271	29	34	28	287	8	323	303	295	312	23	39
KANSAS CITY, MO.	120	129	332	72	67	90	288	60	73	111	196	278	15	66	236	306	184	82	126		157	262	95	134	50	9	113	157	78	93	81	253	79	97	282	275	302	85	105
LITTLE ROCK, ARK.	97	104	335	59	48	65	307	26	48	92	243	300	352	41	260	315	208	43	114	338		276	55	128	21	356	71	158	62	76	64	271	56	22	297	286	309	67	89
LOS ANGELES, CALIF.	81	82	41	62	61	70	52	62	65	79	88	57	60	62	100	19	96	67	87	67	81		70	94	59	52	76	92	65	71	66	95	67	69	35	319	348	68	78
LOUISVILLE, KY.	166	190	313	66	47	87	287	339	43	137	242	282	301	26	256	302	227	348	156	280	239	271		158	342	322	202	205	71	98	75	266	63	278	285	281	301	82	120
MIAMI, FLORIDA	337	326	329	22	3	355	313	342	356	355	302	310	329	353	291	318	290	342	345	321	315	293	341		342	335	334	298	18	16	15	293	1	330	308	299	315	11	13
MILWAUKEE, WIS.	162	175	297	87	88	132	267	170	107	147	218	261	253	99	239	290	207	157	156	235	204	259	160	157		298	172	188	98	121	103	251	111	203	271	270	293	113	135
MINNEAPOLIS, MINN.	145	154	291	91	96	123	248	125	108	135	193	242	184	105	227	283	186	132	144	189	175	248	137	146	114		148	169	99	116	104	237	110	159	259	261	287	111	127
NASHVILLE, TENN.	140	180	320	59	40	61	295	354	36	114	251	290	318	24	261	307	231	8	142	298	254	275	22	150	353	333		205	63	83	65	271	50	313	291	285	305	68	103
NEW ORLEANS, LA.	50	37	337	46	32	38	318	9	28	60	299	313	347	22	283	321	270	17	86	339	339	288	22	114	7	351	23		46	56	47	287	35	359	308	296	315	47	64
NEW YORK, N. Y.	233	240	296	54	303	251	281	281	280	223	255	278	280	286	262	294	244	269	213	271	253	274	259	202	287	293	251	237		205	229	269	269	266	283	282	297	235	208
NORFOLK, VA.	249	253	306	35	342	291	290	303	319	236	264	286	295	318	268	301	253	294	217	285	267	279	284	198	308	307	269	244	25		16	274	322	284	289	286	302	343	208
PHILADELPHIA, PA.	233	240	298	52	317	255	283	285	289	221	255	279	283	294	263	296	246	273	212	273	255	275	263	199	292	296	252	235	49	197		270	279	269	284	282	298	235	203
PHOENIX, ARIZONA	80	83	29	61	59	69	35	58	62	79	89	40	55	59	108	0	100	64	89	62	80	277	70	97	55	45	74	93	64	72	66		64	66	1	300	334	68	79
PITTSBURGH, PA.	210	221	300	72	18	213	280	286	308	188	246	276	281	310	257	295	235	264	189	268	244	271	246	181	296	299	234	222	85	140	96	265		261	281	279	297	123	165
ST. LOUIS, MO.	134	150	320	70	60	90	287	30	63	119	224	280	319	53	248	303	207	68	137	280	204	267	94	143	20	342	130	179	75	95	79	260	74		284	278	301	84	110
SALT LAKE CITY, UTAH	99	101	50	73	74	86	83	79	78	95	118	98	80	76	152	359	123	84	103	91	104	220	88	109	75	67	95	114	78	86	80	181	80	90		254	315	83	92
SAN FRANCISCO, CALIF.	86	86	54	66	67	75	70	70	70	83	96	75	70	68	109	39	101	73	90	77	88	136	77	96	67	62	81	97	69	76	71	114	71	77	66		1	73	81
SEATTLE, WASHINGTON	103	105	87	81	84	94	111	92	89	100	118	116	97	88	136	96	120	95	105	103	109	165	97	109	90	88	102	114	85	92	87	147	89	100	128	181		90	97
WASHINGTON, D. C.	233	240	302	52	342	263	285	293	307	215	256	281	287	308	263	298	245	280	205	277	257	275	268	192	300	302	254	235	53	163	53	270	305	273	285	283	300		189
WILMINGTON, N. C.	267	267	313	32	355	325	297	318	339	267	270	293	306	335	274	307	258	313	222	296	278	283	305	194	322	317	289	251	25	27	21	278	346	298	295	290	306	9	

The above table shows the great circle bearing in degrees, of various metropolitan areas in the United States in relationship to each other. This table should be used from left to right only. To find the great circle bearing between any two of the cities shown, start at the left and follow the horizontal line to the right until you come to the column directly under the name of the city that you desire to beam a radio signal to. For all practical purposes in the United States, Polaris (the North Star), is due north. To find this star, to calibrate a directional radio beam, look for the first star on a straight line with the two outer stars on the outside edge of the cup of the big dipper. This table was compiled from information furnished by the U. S. Coast and Geodetic Survey.

WORLD WIDE QSL BUREAUS

AP	Pakistan Amateur Radio Society, QSL Bureau, P O Box 65, Lahore, West Pakistan, Asia
BV	China Radio Association, P O Box 2007, Keelung, Taiwan, Rep. of China
CE	Radio Club of Chile, P O Box 13630, Correo 15, Santiago, Chile, South America
CM-CO	Federacion de Radioaficionados de Cuba, P O Box 6996, Havana, Cuba
CN	ARRAM, P O Box 299, Rabat, Morocco, Africa
CN9	Amateur Radio Club Zona Norte, P O Box 124, Tetuan, Morocco, Africa, or via URE or AAEM
CP	Radio Club Boliviano, P O Box 2111, La Paz, Bolivia, South America
CP5	QSL Bureau, P O Box 1900, Cochabamba, Boliva, S.A.
CP6	QSL Bureau, P O Box 393, Santa Cruz, Bolivia, S.A.
CR4	LARCV, P O Box 145, Mindelo, Cape Verde Is, Africa
CR6	LARA, P O Box 484, Luanda, Angola, Africa
CR7	LREM, Liga dos Radio Emissores de Mocambique, P O Box 812, Lourenco Marques, Mozambique, Africa
CR9	Hong Kong Amateur Radio Transmitting Society, P O Box 541, Hong Kong, Asia
CT	REP, Rua D Pedro V-7-4, Lisbon 2, Portugal, Europe
CX	Radio Club of Uruguay, P O Box 37, Montevideo, Uruguay, South America
DA,B,C,F,J,K,L	DARC Amateurfunk Zentrum, Lindenallee 6, Box 1155, D-3501 Baunatal 1, German Federal Republic
DA1,2,4,DL4,5AA-QZ & VA-WZ	DARC or ARS DL4MN-MARS, HHC 32nd Sig Bn, McNair Kaserne, Konrad Klattstr, D-623 Frankfurt 80, Hoechst, German Federal Republic
DA1,2,DL5 RA-UZ	DARC or REF QSL Bureau, Box 70, 75560 Paris Cedex 12, France, Europe
DA1,2,DL5XA-ZZ	DARC or RSGB QSL Bureau, c/o Arthur Milne G2MI, 29 Kechill Gardens, Hayes, Bromley, Kent, England BR2 7NA
DM	DM QSL Bureau, P O Box 30, Berlin 55, East German Democratic Republic, Europe
DU	PARA QSL Bureau, P O Box 4083, Manila, Philippines
EA	URE, Union of Radioaficionados Espanoles, P O Box 220, Madrid, Spain, Europe
EI	IRTS QSL Bureau, P O Box 462, Stella Av, Dublin 20124, Ireland Or EI-QSL-Bureau, P O Box 73, Athlone, Ireland
EL	Cards for EL1 & 2 only - G Marcus Kelly, c/o Liberian Govt. Radio Stn, Monrovia, Liberia, Africa All others - Via QSL Bureau, P O Box 1477, Monrovia, Liberia, Africa
EP	Amateur Radio Society of Iran, c/o Box 1000 ARMISH-MAAG, APO New York 09205
ET3	Telecommunications Amateur Radio Club, P O Box 1047, Addis Ababa, Ethiopia, Africa Cards for U S Army Personnel may be sent via Kagnew Amateur Radio Club, ET3USA, APO New York 09843
F1,FB8,FL8,FM7,FP8,FY7	REF QSL Service, Box 70, 75560 Paris Cedex 12, France, Europe
FG7	Radio Club Guadeloupe, P O Box 387, Pointe-A-Pitre, Guadeloupe, West Indies
FH8	QSL Manager, 5R8BC, P O Box 587, Tananarive, Madagascar, Africa
FK8	QSL Bureau, P O Box 637, Noumea, New Caledonia
FO8	Radio Club Oceanien, P O Box 374, Papeete, Tahiti
G	RSGB, Radio Society of Great Britain, c/o Arthur Milne, G2MI, 29 Kechill Gdns, Hayes, Bromley, Kent, England BR2 7NA I S W L QSL Bureau, 1 Grove Road, Lydney, Gloucestershire GL15 5JE, England
GC-GD	RSGB
GI	R R Parsons, GI3HXV, 45 Erinvale Av, Finaghy, Belfast 10, Northern Ireland, Europe
GM-GW	RSGB
HA-HG	HSRL, P O Box 214, Budapest 5, Hungary
HB,HBØ	USKA, HB9NL, Sonnenrain 188, CH 6233 Bueron, LU, Switzerland, Europe
HC	Guayaquil Radio Club, P O Box 5757, Guayaquil, Ecuador
HC1	Asociacion Radio Ecuatoriana, P O Box 289, Quito, Ecuador, South America
HC5	Cuenca Radio Club, P O Box 1366, Cuenca, Ecuador
HH	Radio Club of Haiti, P O Box 70B, Port-au-Prince, Haiti
HI	Radio Club Dominicano, P O Box 1157, Santo Domingo, D.N., Dominican Republic, West Indies
HK	LCRA, Liga Colombiana de Radio Aficionados, P O Box 584, Bogota, Colombia, South America
HL9	All HL9 stations - address with call letters and name, c/o 8th U S Army Signal Officer, AC of SCE, APO San Francisco 96301
HM	KARL, Central Box 162, Seoul 100-00, Korea, Asia
HP	Radio Club de Panama, Box 10745, Panama 4, Rep. of Panama, C.A.
HP3	Esteban D Mackay HP3ML, Box 587, David, Chirigui, Rep. of Panama
HR1-HR4	Radio Club Tegucigalpa, Box 149-c, Tegucigalpa, DC, Honduras
HR2	QSL Bureau, Radio Club de Honduras, P O Box 273, San Pedro Sula, Cortes, Honduras
HR3-HR6	HR3FJI, Av 14 De Julio, 3 Calle, La Ceiba, Atlantida, Honduras
HR5	HR5NLC, Santa Rosa de Copan, Copan, Honduras
HS	RAST QSL Bureau, Box 2008, c/o GPO, Bangkok, Thailand, Asia
HV	Domenico Petti, HV1CN, Vatican City, Europe
HZ	Via HZ3TYQ, Victor L Crawford, P O Box 1721, Aramco, Dhahran, Saudi Arabia, Asia
I	ARI, V Scarlatti 31, 20124 Milano, Italy
JA,JR6	JARL, Box 377, Tokyo, Japan, Asia
JT1	Radio Club JT1KAA, P O Box 639, Ulan Bator, Mongolia
JW1,JX1	NRRL, Box 21, Refstad, Oslo 5, Norway, Europe
KA	FEARL(M), CMR Box 1414, APO San Francisco 96525
KA6	QSL Bureau, OARC, APO San Francisco 96331, USA
KC4AA	Office of Antarctic Programs, National Science Foundation, Washington, D.C. 20550, USA
KC4US	c/o Commander, Antarctic Support Activities, FPO New York 09501 Or c/o Dave Porter, K2BPP, Mountainside Rd, Mendham, New Jersey 07945
KG4	Base Amateur Radio Office, Box 12, FPO New York 09593
KG6	Mariana Islands, except Guam, send cards direct
KG6	Guam only, via P O Box 445, Agana, Guam, Mariana Is.
KH6	John H Oka, KH6DQ, P O Box 101, Aiea, Oahu, Hawaii 96701
KJ6	DET 1-1957 Comm Group AFCS, KJ6BZ, APO San Francisco 96305
KL7	Mary Olendorff, KL7BJD, Star Rt C, Wasilla, Alaska 99687
KM6	KM6BI, Box 43, FPO San Francisco 96614, USA
KP4	Alicia G Rodriguez, KP4CL P O Box 1061, San Juan, Puerto Rico
KP4	Novice cards only - the NNQB District QSL Manager, KP4QA, Jorge Blanch, Box 2573, San Juan, Puerto Rico
KS4	Swan Island, West Indies, via Tampa, Florida, USA
KV4	Graciano Belardo, KV4CF, P O Box 572, Christiansted, St. Croix 00820, Virgin Is, West Indies
KW6	Jack A Chalk, P O Box 7, Wake Island 96930
KX6	Kwajalein Amateur Radio Club, KX6BU, P O Box 444, APO San Francisco 96555, USA
KX6	Eniwetok Amateur Radio Club, Air Force Western Test Range, APO San Francisco 96333 USA
KZ5	QSL Manager, KZ5OD, Box 407, Balboa, Canal Zone, C.A.
LA	Norwegian Radio Relay Liga, P O Box 21, Refstad, Oslo 5, Norway, Europe
LU	RCA, Radio Club Argentino, Carlos Calvo 1424, Buenos Aires, Argentina, South America
LX	Robert Schott, LX1DC, 35 Rue Batty Weber, Esch s/Alzette, Luxembourg, Europe
LZ	Central QSL Bureau, Box 830, Sofia, Bulgaria, Europe
M1	Geom Mario Graziani, M1B, via Della Tana 226, Republic of San Marino, Europe
MP4	Ian Cable, MP4BBW, Box 425, Awali, Bahrein Is, Asia
OA	RCP, Radio Club of Peru, Box 538, Lima, Peru, S.A.
OD5	RAL QSL Bureau, Box 8888, Beirut, Lebanon, Asia
OE	OE, VSV QSL Bureau, P O Box 999, Vienna 1/9, Austria
OH	SRAL QSL Bureau, P O Box 306, SF-00101 Helsinki 10, Finland
OK-OL	Central Radio Club, P O Box 69, Praha 1, Czechoslovakia
ON	UBA, P O Box 634, Brussels 1, Belgium, Europe Or UBRC, P O Box 224, Brussels 1, Belgium
OR	UBA, P O Box 634, B-1000 Brussels, Belgium
OX-OZ	EDR QSL Bureau, Ingstrup, 9480 Lokken, Denmark, Europe
OX4	OX4AA-ZZ via MARS Director, XP1AB, APO New York 09121, USA
OX5	OX5AA-ZZ via MARS Director, XP1AA, APO New York 09023, USA
OY	QSL Bureau, OY3B, Sofus Rubeksen, U Svartifossi, DK-3800, Torshavn, Faeroes Island, Europe
OZ	EDR QSL-CENTRAL, Harry Sorensen, OZ6HS, Ingstrup-9480-Lokken, Denmark
PA-PE-PI	Dutch QSL Bureau, P O Box 400, Rotterdam, Netherlands
PJ	VERONA QSL Bureau, P O Box 383, Willemstad, Curacao, Netherlands Antilles, S.A.
PJ	Cards for Aruba - Aruba Amateur Radio Club, Box 273, San Nicolas, Aruba, Netherlands Antilles, S.A.
PT	PT QSL Bureau, Box 07-911, 70000 Brasilia, DF, Brasil
PY	LABRE, Box 2353, ZC-00, 20000 Rio de Janeiro, GB, Brazil, S.A.
PZ	VRAS, QSL Manager, P O Box 566, Paramaribo, Surinam, S.A.
SK-SL-SM	SSA, 12207 Enskede 7, Sweden
SP	PZK QSL Bureau, P O Box 320, Warsaw 1, Poland, Europe
SU	QSL Bureau, P O Box 840, Cairo, Egypt, Africa
SV	Mediterranean SV QSL Bureau, P O Box 564, Athens, Greece Cards may also be sent via SV QSL Bureau, NARU, P O Box 1442, Athens 20, Greece
SVØ	QSL Bureau, c/o SVØWY, APO New York 09223, USA
TA-TC	Turkey Radyo Amatorleri Cemiyeti, P O Box 699, Karakoy, Istanbul, Turkey, Asia
TF	IRA, Islenskir Radio Amatorar, P O Box 1058, Reykjavik, Iceland, Europe
TF	For American amateurs, Keflavik Amateur Radio Organization, Box 44, FPO New York 09571, USA
TG	CRAG, P O Box 115, Guatemala City, Guatemala, C.A.
TI	Radio Club of Costa Rica, P O Box 2412, San Jose, Costa Rica, Central America
TN8	QSL Bureau, P O Box 2239, Brazzaville, Republic of Congo, Africa
TU2	ARAI, P O Box 20036, Abidjan, Ivory Coast, Africa
U	Central Radio Club, P O Box 88, Moscow, Russia, Europe
VE1	L J Fader, VE1FQ, P O Box 663, Halifax, Nova Scotia, Canada
VE2	A G Daemen, VE2IJ, 2960 Douglas Av, Montreal 301, Quebec, Canada
VE3	Russ H Buckley, VE3UW, 20 Almont Road, Downsview, Ontario, Canada
VE4	D E McVittie, VE4OX, 647 Academy Road, Winnipeg 9, Manitoba, Canada
VE5	VE5JI, A Lloyd Jones, 2328 Grant Rd, Regina, Saskatchewan, Canada
VE6	D C Davidson, VE6TK, 1108 Trafford Dr NW, Calgary 47, Alberta, Canada
VE7	Henry R Hough, VE7HR, 1291 McKenzie Av, Victoria, British Columbia, Canada
VE8	Yellowknife Centennial ARC, Box 954, Yellowknife, NWT, Canada
VK1	Canberra Radio Society, VK1ACA, c/o QSL Officer, Box 1173, Canberra City 2601, ACT, Australia
VK2	WIA Hunter Branch, QSL Officer, Box 134, Charlestown 2290, NSW, Australia
VK3	QSL Bureau, E Trebilcock, 340 Gillies St, Thornbury, Victoria 3071, Australia
VK4	QSL Officer, Box 638, GPO, Brisbane 4001, Queensland, Australia
VK5	QSL Bureau, c/o George Luxon, VK5RX, 203 Belair Rd, Torrens Park, South Australia 5062
VK6	QSL Bureau, c/o J Rumble, VK6RU, P O Box F319, GPO Perth, West Australia 6001
VK7	QSL Bureau, Box 371D, GPO, Hobart 7001, Tasmania, Australia
VK8-9-Ø-SWL and unlisted calls only.	QSL Bureau, c/o R Jones, 23 Landale St, Box Hill, Vic 3128, Australia
VO1	Ernest Ash, VO1AA, P O Box 6, St. Johns, Newfoundland, Canada
VO2	Goose Bay ARC, P O Box 232, Goose Bay, Labrador, Canada
VP2	Antigua - via Gerald Price, VP2AC, P O Box 114, St. Johns, Antigua, Leeward Is.
VP2	Dominica-ARC of Dominica, VP2DZ, c/o Postal Deliveries, GPO, Roseau, Dominica, Windward Is.
VP2	Grenada - Fred W Pressey, VP2GBL, P O Box 104, Grenada, Windward Is.
VP2	St. Lucia - via Timothy A James, VP2LT, P O Box 322, Castries, St. Lucia, Windward Is.
VP2	St. Vincent - via QSL Bureau, P O Box 142, St. Vincent, Windward Is.
VP7	Bahamas Amateur Radio Society, P O Box 6004, Nassau, Bahama Is.
VP8	Falkland Is & South Georgia - direct or the CX QSL Bureau, P O Box 37, Montevideo, Uruguay, South America All other VP8 bases via - RSGB, England
VP9	Radio Society of Bermuda, P O Box 275, Hamilton, Bermuda
VQ1	The RSEA QSL Bureau, P O Box 2387, Dar-Es-Salaam, Tanzania, East Africa
VR2	The QSL Bureau, P O Box 184, Suva, Fiji Islands
VS6	Hong Kong Amateur Radio Transmitting Society, P O Box 541, Hong Kong, Asia
VS9M	RGSB, 28 Little Russell St, London, WC 1, England
VU	Amateur Radio Society of India, P O Box 534, New Delhi 1, India, Asia
W1-K1	Foreign stations only, via Hampden County A R Assn, Box 216, Forest Park Stn, Springfield, Mass 01108
W2-K2	Foreign stations only, via North Jersey DX Assn, P O Box 505, Ridgewood, New Jersey 07451
W3-K3	Foreign stations only, via W3KT, Jesse Bieberman, RFD 1, Box 66, Malvern, Pa. 19355
W4-K4	Foreign stations only, via North Alabama DX Club, P O Box 2035, Huntsville, Alabama 35804
WA4-WB4-WN4	Foreign stations only, via W4LR, J R Baker, P O Box 1989, Melbourne, Florida 32901
W5-K5	Foreign stations only, via W5QMJ, Kenneth F Isbell, 306 Kesterfield Blvd, Enid, Oklahoma 73701
W6-K6	Foreign stations only, via NCDXC, Box 11, Los Altos, California 94022
W7-K7	Foreign stations only, via Willamette Valley DX Club, Box 555, Portland, Oregon 97207
W8-K8	Foreign stations only, via W8TO, Columbus A R Assn, Radio Rm, 280 E Broad St, Columbus, Ohio 43215
W9-K9	Foreign stations only, via Northern Illinois DX Ass'n, P O Box 519, Elmhurst, Illinois 60126
WØ	Foreign stations only, via WØOYP, Reggie Hoare, Box 115, Mitchellville, Iowa 50169
KØ,WAØ,WBØ,WNØ	Foreign stations only, via Dr Phillip Rowley, KØZFL, RFD 1, Box 455, Alamosa, Colorado 81101
WAØ	Foreign stations only, via WØQGI, Lloyd Harvey, P O Box 7, Attica, Iowa 50024
XE	ARARM QSL Bureau, Av Hangares 418-#1, Mexico, DF, Mexico
XE	Cards for members only may be sent via LMRE, Box 907, Mexico 7, DF, Mexico
XW8	Houmphanh Saignasith, XW8AL, Statistics Dept, P O Box 46, Vientiane, Laos, Asia
YA	CDRC, P O Box 279, Kabul, Afghanistan, Asia
YB1	QSL Bureau, P O Box 288, Bandung, Indonesia
YB2	QSL Bureau, P O Box 88, Semarang, Indonesia
YB3	QSL Bureau, P O Box 59, Surabaia, Indonesia
YB4	YB4GA, Johanes Titaley, GG Sumatra-#B-5, Palembang, South Sumatra
YB6	QSL Bureau, P O Box 464, Medan, Indonesia
YB7,8,9,Ø	QSL Bureau, P O Box 2761, Djakarta, Indonesia
YK	QSL Bureau, P O Box 35, Damascus, Syria, Asia
YN	Via Mike Murciano, YN1MO/W4, P O Box 902, Coral Gables, Florida 33134 USA
YO	The Central Radio Club, P O Box 1395, Bucuresti 5, Romania
YS	Oscar R Orellana, YS1O, P O Box 329, San Salvador, El Salvador, Central America Members only - CRAS, P O Box 517, San Salvador, El Salvador, Central America
YU	SRJ, P O Box 48, Belgrade, Yugoslavia, Europe
YV	RCV, Radio Club Venezolano, P O Box 2285, Caracas, Venezuela, South America Or ARV QSL Bureau, Box 3636, Caracas, DF, Venezuela
ZB2	Via RAF Amateur Radio Club, Royal Air Force, Gibraltar, Europe Or Gibraltar ARS, 39 Town Range, Gibraltar, Europe
ZC4	Cyprus Amateur Radio Society, P O Box 216, Famagusta, Cyprus, or via G2MI
ZD7	Via P O Jamestown, St. Helena, Africa
ZD8	Ascension Amateur Radio League, ZD8AR, P O Box 4187, Patrick AFB, Florida, USA
ZD9	RSGB, c/o Arthur Milne, G2MI, 29 Kechill Gdns, Hayes, Bromley, Kent, England
ZE	RSR QSL Manager, P O Box 2377, Salisbury, Rhodesia
ZF1	Cards may be sent direct
ZK1	QSL Bureau, Radio Station Rarotonga, Rarotonga, Cook Is.
ZL	NZART, P O Box 489, Wellington, New Zealand
ZP	Radio Club Paraguayo, Casilla de Correo 512, Asuncion, Paraguay, South America
ZS	For members only - SARL, P O Box 3037, Capetown, Cape Province, South Africa
3A2	Pierre Anderhalt, 3A2CN, 41 Blvd. Jardin Exotique, Monaco - or Director Generale des Telecoms, 16 Blvd. de Suisse, Monte Carlo, Monaco, Europe
3B7,8,9	Paul Caboche, 3B8AD, P O Box 467, Port Louis, Mauritius, Africa
4S7	Radio Society of Sri Lanka (Ceylon), QSL Manager, Box 907, Colombo, Sri Lanka (Ceylon), Asia
4W1-4W3	Cards for HB9 calls in Yemen, via USKA, HB9NL, Sonnenrain 188, 6233 Bueron, LU, Switzerland
4X4	Shalom Bacalu, IARC QSL Bureau Manager, Box 65, Herzlia, Israel
5A	QSL Bureau, Box 372, Tripoli, Libya, North Africa
5N2	Nigerian Amateur Radio Society, P O Box 2873, Lagos, Nigeria, Africa
5R8	QSL Bureau, P O Box 587, Tananarive, Madagascar, Africa
5V	Via P O Box 33, Atakpame, Togo, West Africa
5W1	Western Samoa RC, QSL Bureau - Secretary, Box 1069, Apia, Western Samoa
5X5	The Uganda Amateur Radio Club QSL Bureau, P O Box 3433, Kampala, Uganda, East Africa
5Z4	RSEA QSL Bureau, Box 45681, Nairobi, Kenya, Africa
60	Via P O Box 397, Mogadiscio, Somali Republic, Africa
6W8	REF, or ARAS, P O Box 971, Dakar, Senegal, Africa
6Y5	Jamaica Amateur Radio Assn, Jamaica Red Cross, 76 Arnold St, Kingston 5, Jamaica, West Indies
7G1	Central Radio Club, Box 69, Praha 1, Czechoslovakia
7Q7	H Y Bvumbwe, 7Q7AE, Box 24, Blantyre, Malawi
7X	ARA QSL Service, Box 2, Alger, Algeria, Africa
7Z	HZ3TYQ, Victor L Crawford, P O Box 1721, Aramco, Dhahran, Saudi Arabia
8P6	Radio Society of Barbados, P O Box 814E, Bridgetown, Barbados, Windward Is.
8QA	Radio Society of Ceylon, P O Box 907, Colombo, Ceylon, Asia
8R1	Cards may be sent direct
9G1	Cards for members only, Ghana Amateur Radio Society, P O Box 3773, Accra, Ghana, Africa
9H1	Robert F Galea, 9H1E, Casa Galea, Railway Road, Birkirkara, Malta, Europe
9H4	Eric Rogers, 9H4G, Dar Ghall-Kwiet, Ghajn Melel St, Zebbug, Gozo, Malta, Europe
9I-9J	Via Radio Society of Zambia, P O Box 332, Kitwe, Zambia, Africa
9K2	Nasir H Khan, 9K2AN, Box 736, Kuwait, Asia
9M2	MARTS, Box 777, Kuala Lumpur, Malaysia, Asia
9M6-9M8	Via N Yatheendran, 9V1JY, 363 Woodlands Rd, Singapore 23, Asia Or MARTS, P O Box 777, Kuala Lumpur, Malaysia, Asia
9Q5	UZAR, QSL Bureau, Box 1459, Kinshasa, Rep. of Zaire, Africa
9U5	M Andre Berckmans, P O Box 14, Bujumbura, Burundi, Africa
9V1	SARTS, Box 2728, Republic of Singapore I, Asia
9X5	RAR QSL Bureau, P O Box 663, Kigali, Rep. of Rwanda
9Y4	Trinidad and Tobago Amateur Radio Society, P O Box 1167, Port-of-Spain, Trinidad, South America

WORLD TIME CONVERSION CHART IN HOURS

Greenwich Meridian Time. London, England.	Central Europe. Berlin, Geneva, Stockholm, Vienna.	Eastern Europe. Athens, Cape Town, Cairo, Moscow	Arabia, Armenia, Ethiopia, Madagascar.	Mauritius, Iran. Reunion Island.	Central Russia, Bombay, India.	Calcutta, Novosibirsk Russia, Tibet.	Sumatra. Thailand, Laos.	Philippines. Perth, Australia	Central Australia. Tokyo, Japan.	Eastern Australia. Melbourne, Sydney.	New Caledonia.	International Date Line. New Zealand. Fiji Islands.	Nome, Alaska. Samoa Islands.	Hawaii. Midway Islands.	Eastern Alaska. Dawson	Pacific Standard Time. Los Angeles, Seattle, Juneau.	Mountain Standard Time. Calgary, Denver, Phoenix.	Central Standard Time. Chicago, Costa Rica.	Eastern Standard Time. Montreal, New York, Peru.	Atlantic Standard Time. Argentina, Nova Scotia.	Greenland. Rio de Janeiro, Brazil.	Azores.	Iceland. Canary Islands.
0000	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
0100	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night
0200	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM
0300	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM
0400	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM
0500	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM
0600	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM
0700	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM
0800	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM
0900	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM
1000	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM
1100	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM
1200	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM
1300	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon
1400	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM
1500	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM
1600	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM
1700	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM
1800	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM
1900	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM
2000	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM
2100	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM
2200	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM
2300	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM

With this chart you can convert standard time in any time zone to GMT or tell what time it is in other parts of the world. To correctly use this chart visualize each horizontal line as a complete circle. From your time zone tracing horizontally to the right (Counter Clockwise) it will be tomorrow when you pass midnight and yesterday when you pass the international date line. To the left (Clockwise) it will be yesterday when you pass midnight and tomorrow when you pass the international date line. There is no change in date when you pass both midnight and the international date line going in one direction. For instance at 8 PM in New York Eastern Standard Time it is 2 AM tomorrow in Berlin, Germany and 11 AM tomorrow in Sydney, Australia. Always trace in the shortest direction from your time zone to find what time it is in any other zone.

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Select the satin smooth, walnut grained or jet black nameplate with white letters (up to 20 letters and numbers per line), mounted in satin gold or silver finish, anodized aluminum holder. Two sizes as illustrated above.

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2" x 8"

Nameplates in three sizes for your door or rig in walnut grained or jet black, with white letters. Up to 18 letters per line on the 1" x 4" plate. Up to 20 letters on the others. Each with special adhesive back for immediate installation. No tools needed.

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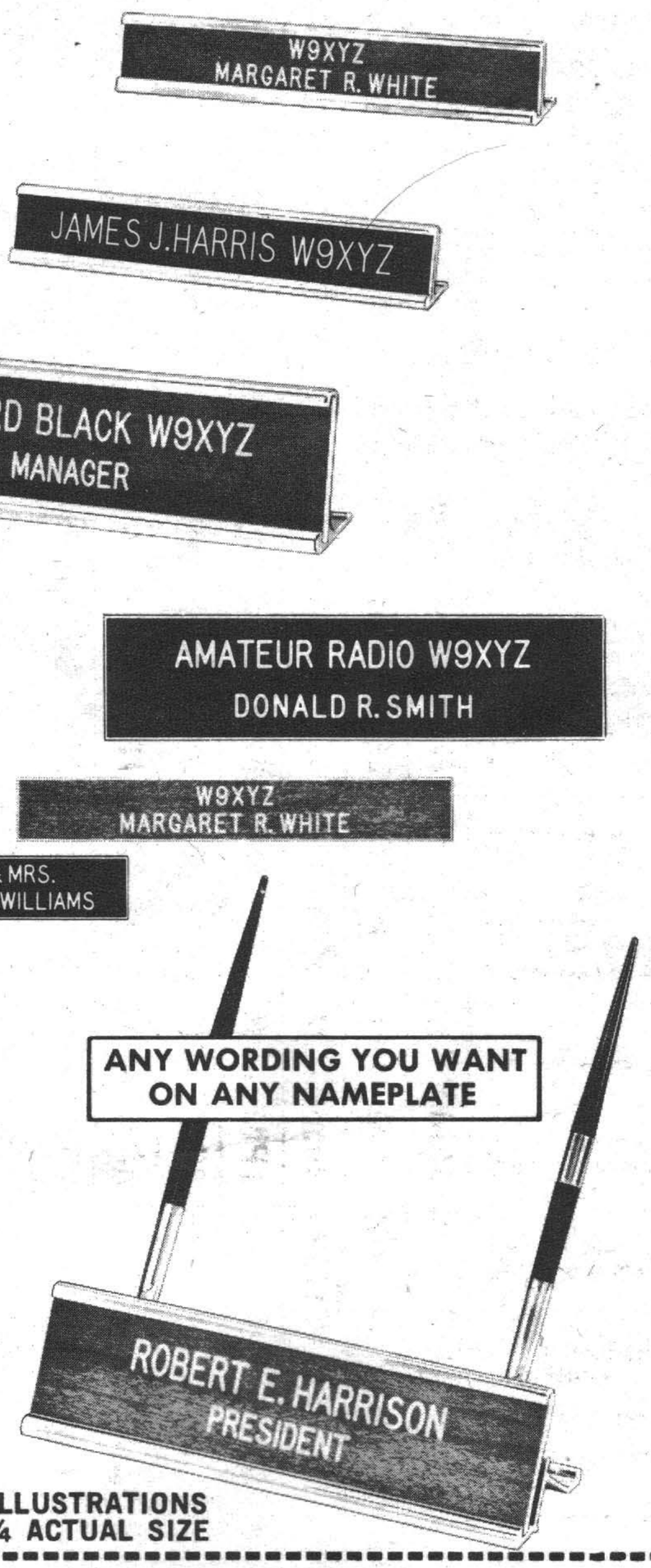
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2" x 8"	$2.75	$3.25
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☐ Door or rig	☐ Walnut Grained ☐ Jet Black	All letters same size Up to 18 characters per line on 4" Up to 20 characters per line on 7" & 8"	☐ 1"x4" ☐ 1"x7" ☐ 2"x8"	
☐ Exec. Desk Set	☐ Walnut Grained ☐ Jet Black	All letters same size Up to 20 characters per line		☐ Gold ☐ Silver
☐ Lapel Pin	☐ Jet Black ☐ White ☐ Red ☐ Blue	All letters same size Up to 12 characters—one line only		

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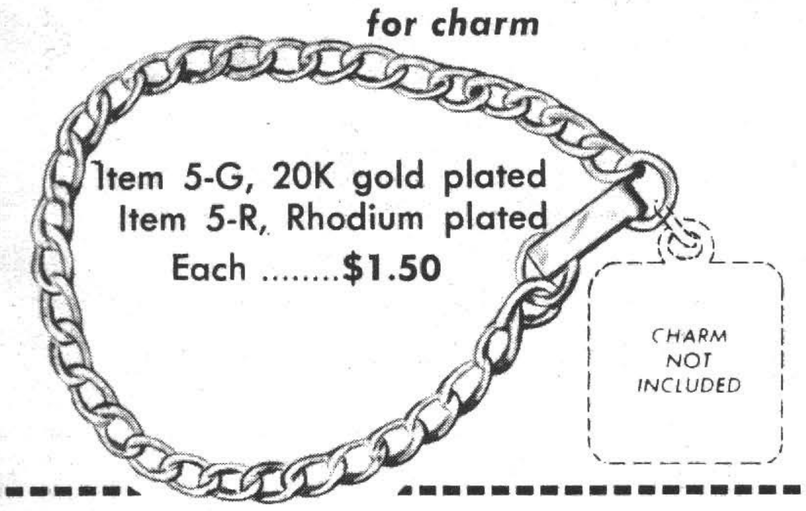
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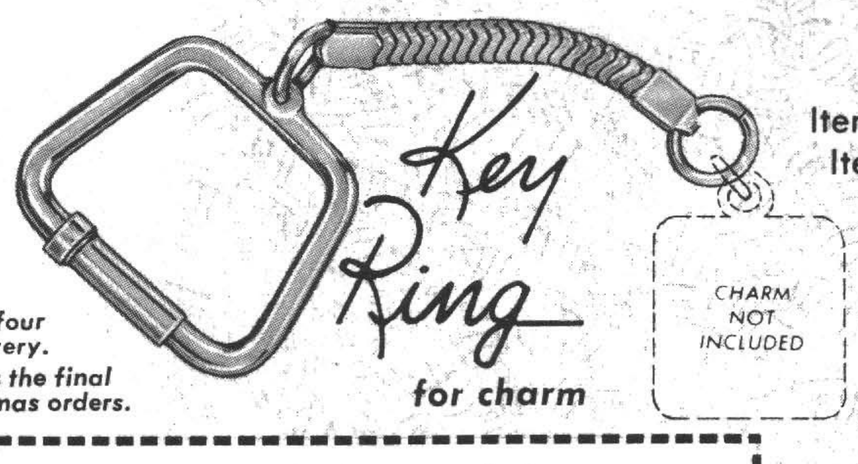
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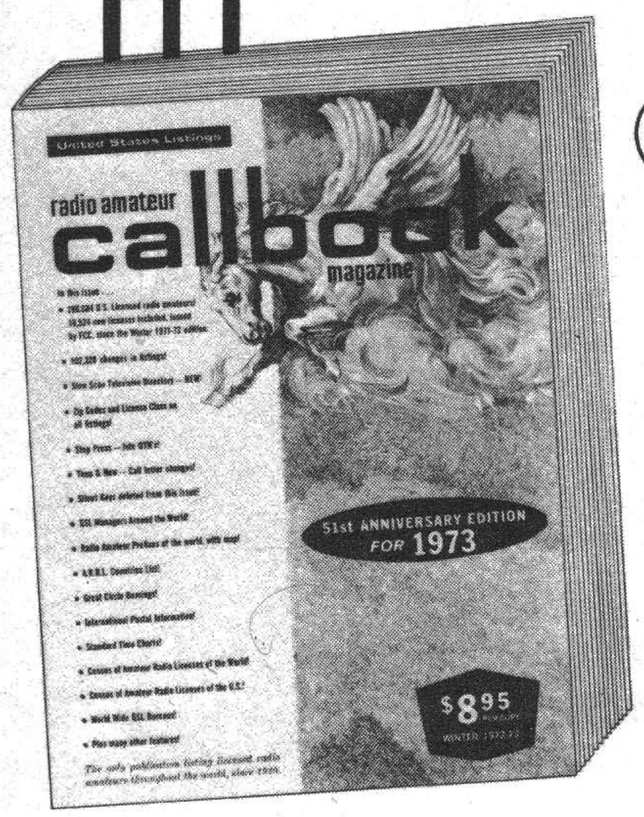
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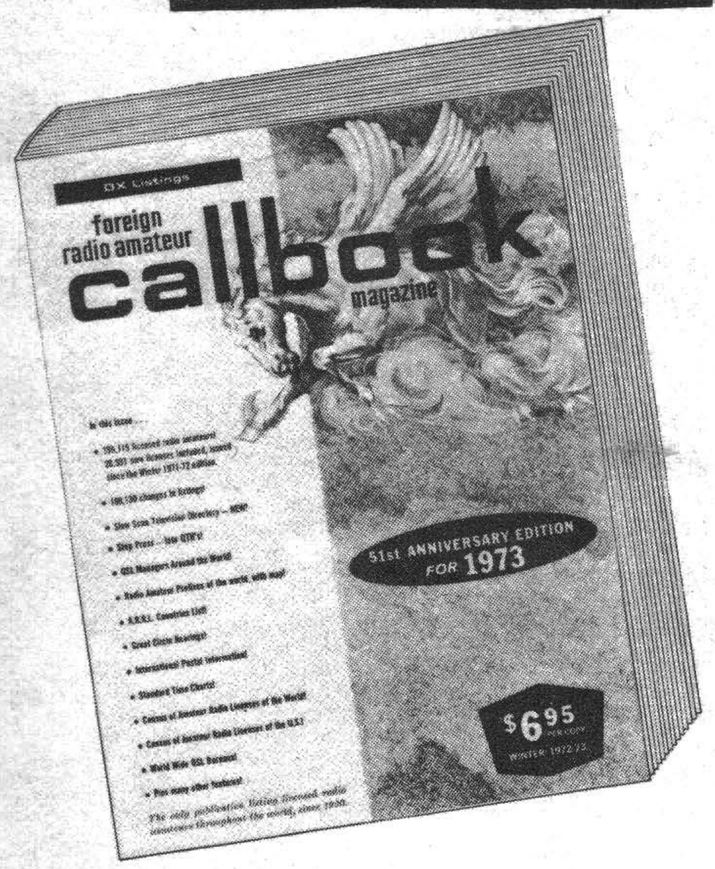
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